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Maladaptive Personality Traits and Sex Addiction Profiles

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The University of Southern Mississippi

MALADAPTIVE PERSONALITY TRAITS AND SEX ADDICTION PROFILES

by

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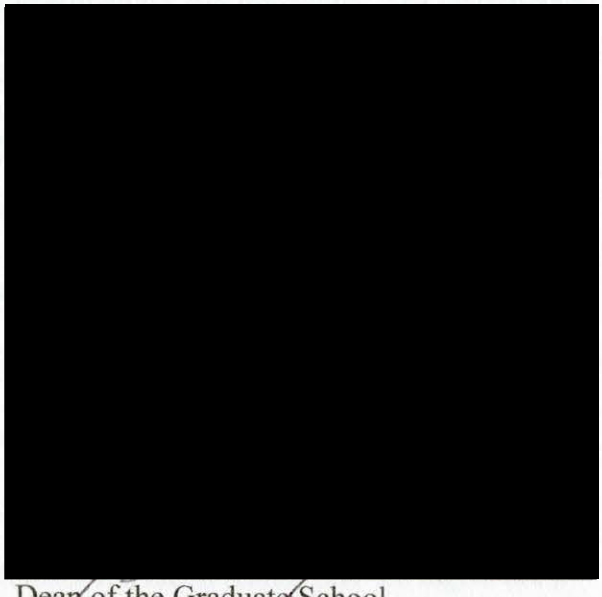

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ABSTRACT

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How do pathological personality traits relate to specific expressions of compulsive sexual behaviors? Previous studies have concluded that there are only small relationships between these two constructs, but such studies have usually conceptualized sexual compulsion as a unidimensional construct. The current study used a correlational design to evaluate the relationship between pathological personality traits and six general domains of sexually compulsive behaviors and cognitions in an inpatient and outpatient clinical sample (N = 540) of males seeking treatment for sex addiction. The pathological personality trait results were assessed using the MMPI-2 Psychopathology Five (PSY-5) domain and facet traits. The sexually compulsive behaviors and cognitions were measured by seven higher-order factors of the Sexual Dependency Inventory-4.0 scales. Based on the findings of previous studies and theory, it was expected that the PSY-5 factors and facet traits Disconstraint, Negative Emotionality/Neuroticism, Psychoticism, and Mistrust would have small to moderate associations with sexual compulsivity in the sample. Data were analyzed at three different levels. First, zero-order correlations were used to analyze the relationship between the PSY-5 domain and facets scales, SDI-4.0 higher order factors, and SDI-4.0 individual scales. Next, multiple regression analyses were conducted to see how each PSY-5 domain and facet scales related to each of the higher-order factors of sexual compulsive behaviors. Finally, canonical correlation analyses were used to explore

the relationships between the PSY-5 domain and facet scales with the SDI-4.0 higher order factors at the multivariate level.

The results were largely consistent with what was hypothesized. The PSY-5 domains primarily related to the measures of sexual addictions and cognitions were Disconstraint, Negative Emotionality/Neuroticism, and Psychoticism. The PSY-5 facets added greater definition to the results and accounted for more variance in the canonical correlations analysis compared to the canonical correlation analysis of the PSY-5 domains. The findings suggest that the PSY-5 facets may have clinical utility above and beyond the PSY-5 domains due to their greater specificity, enabling clinicians to target very specific problematic traits in therapy.

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CHAPTER I

INTRODUCTION

A growing body of research has revealed the need for a better understanding of a relatively newly recognized addiction, sex addiction. While relatively little is known regarding the prevalence of this disorder, it can be seen that the costs of treatment, which reportedly can cost up to $40,000/month per person for inpatient treatment programs, are likely prohibitive to many people who might seek treatment for sex addiction (Ryan, 2010). Additionally, rates of relapse for sex addicts range between 21-71% after treatment (Schneider, Corley, & Irons, 1998; Schneider & Schneider, 1996 in Wan, Finlayson, & Rowles, 2000). It is evident that more effective and affordable treatments are needed.

Sex Addiction Definition

There is substantial debate concerning the definition and basic construct of sex addiction. Some researchers define sex addiction as compulsive sexual behavior that is "excessive or uncontrolled behavior or sexual cognitions that lead to subjective distress, social or occupational impairment, or legal and financial consequences" (Black, Kehrberg, Flumerfelt, & Schlosser, 1997, p. 243). This addiction includes a belief system based on impaired thinking, which leads to an addiction cycle of "preoccupation" where the mind is overwhelmed with thoughts of sex, "ritualization" where routines surrounding the sexual behavior become prevalent, "compulsive sexual behavior," which is the "sexual act," and, finally, "despair" in which "hopelessness" and "powerlessness" are present and life becomes unmanageable as the addiction behaviors and preoccupation

begin to take up time and resources to the extent where they impair functioning in multiple life domains, such as job performance and family life (Carnes, 2001, pp. 19-20).

Hypersexuality

Some researchers have argued that hypersexuality is merely a culturally-relative construct and is not problematic because it is merely a violation of socially constructed norms (Levine & Troiden, 1988). They argue that addictions, by definition, need to possess withdrawal symptoms, be quantitatively measured, and have an associated causal substance (Levine & Troiden, 1988). However, high frequency of sexual behaviors and large amounts of time consumed with the intent of affecting mood or coping with stress could potentially be seen as dependency (Kingston & Firestone, 2008; Schneider & Irons, 2001). Additionally, addictive behaviors, including sexual compulsivity, have been associated with the reward pathways of the brain and dopamine levels can affect hypersexuality (Kingston & Firestone, 2008). Fisher (1998) has found preliminary support for three emotional systems that correlate with neuronal pathways in the brain that may affect, specifically, high numbers of lifetime sexual partners (see also Aron et al., 2005; Bartels & Zeki, 2000; Fisher, Aron & Brown, 2005; Fisher, Aron, Mashek, Li, & Brown, 2002). These pathways are influenced by the androgens estrogen and testosterone, the neurotransmitters dopamine, norepinephrine, and serotonin, the neuromodulator phyenylethylamine (PEA), and the hormones vasopressin and oxytocin (Aron et al., 2005; Fisher, 1998; Fisher, 2000). As research continues into these neuronal pathways and the neurochemicals that affect them, greater support for chemically-reinforced compulsive sexual behaviors may emerge. Though these chemicals are not

ingested, as in other addictions, their levels may be strongly reinforcing the compulsive, cyclical behaviors found in sex addicts.

Characteristics of a Sex Addict

Sex addicts routinely demonstrate "a pattern of out-of-control sexual behavior," "severe consequences due to sexual behavior," "inability to stop despite adverse consequences," "persistent pursuit of self-destructive or high risk behavior," "ongoing desire or effort to limit sexual behavior," "sexual obsession and fantasy as a primary coping strategy," "increasing amounts of sexual experience because current level of activity is no longer sufficient," "severe mood changes around sexual activity," "inordinate amounts of time spent in obtaining sex, being sexual, or recovering from sexual experience," and "neglect of important social, occupational, or recreational activities because of sexual behavior" (Carnes, 1991, pp. 11-12). Many sex addicts experience comorbid mental disorders with symptoms including dissociation from reality (Bancroft & Vukadinovic, 2004), drug and alcohol abuse (Lloyd, Raymond, Miner, & Coleman, 2007; Opitz, Tsytsarev, & Froh, 2009), mood or anxiety disorders (Austin, 1998; Kafka & Hennen, 2002; Lloyd et al., 2007; Raviv, 1993; Raymond, Coleman, & Miner, 2003), pathological gambling addictions (Black et al., 1997), neurotic disorders, eating disorders (Briken, Habermann, Berner, & Hill, 2007), compulsive spending, compulsive working (Finlayson et al., 2001), social phobia, childhood ADHD (Kafka & Prentky, 1998) and obsessive-compulsive symptoms (Raviv, 1993). It has been hypothesized that the relatively high rates of other addictions comorbid with sexual addiction may point to an "underlying addictive process" in sex addiction and that sexual addiction may often be used as a coping mechanism against depression and other

stressors (Myers, 1995, p. 475). Could this underlying addictive process be rooted in pervasive personality characteristics or traits? More specifically, are there distinct pathological personality traits that are associated with specific behavioral and cognitive manifestations of sexual addiction? The primary purpose of the current study was to address this question.

Pathological Personality Traits

The most popular model of the structure of normal personality is the Five-Factor Model (FFM; Costa & McCrae, 1992), which posits that most of the important variance in personality can be captured by the following five broad traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness (Widiger, 2011). Researchers working from within the FFM have asserted that pathological personality traits exist at the extreme poles of each personality trait of this five-factor dimensional model of personality (Widiger, 2011). These extreme poles make up a five-factor model of pathological personality traits most often comprised of antagonism, disinhibition, negative emotionality, introversion, and peculiarity (Krueger & Eaton, 2010). Personality disorders are defined by the *DSM-IV-TR* as "an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment" (American Psychiatric Association, 2000, p. 686). A strict five-factor trait dimensional model of personality disorders was not used in the *DSM-5* partly due to the problem that some extreme pathological behaviors do not seem to be completely accounted for even at the extremes of the personality traits of the five-factor models (Wright, 2011).

The *Alternative DSM-5 Model for Personality Disorders*, intended for research purposes, outlines that "personality disorders are characterized by impairments in personality functioning and pathological personality traits" and has been made more dimensional by the inclusion of severity indices (APA, 2013, p. 761). The *DSM-5* taskforce delineated facet level traits, or lower order traits, which give greater specificity to each of the five pathological personality trait domains and help accommodate a greater range of personality features into any given diagnosis while giving greater detail to individual's overall personality profile (Krueger & Eaton, 2010).

The Personality Psychopathology Five (PSY-5) is a personality trait model that was developed to capture personality trait dimensions ranging from normal to pathological. The PSY-5 constructs were originally identified by utilizing semantic similarity methods in which trained students sorted 60 cards, 39 containing brief descriptions of core topics from the *DSM-III-R* Axis-II personality disorders and 21 with descriptions of normal personality functioning (Harkness & McNulty, 1994). A series of principal components analyses revealed that a five-component rotated solution provided good factor heterogeneity with the clear potential for a hierarchical structure (Harkness & McNulty, 1994). The Aggressiveness factor is characterized by controlling behavior that is primarily motivated by the enjoyment of controlling others (Harkness & McNulty, 1994). Psychoticism refers to a person's "ability to model self, others, and the external object world in a manner that accurately reflects and predicts the events that surround us" (Harkness & McNulty, 1994, p. 307). The Disconstraint factor is marked by traits such as "impulsivity," "rule breaking criminality," and lack of "harm avoidance," which refers to a decreased fear of physically dangerous situations (Harkness & McNulty, 1994, p.

305). The Neuroticism/Negative Emotionality factor is related to a propensity to experience negative affect, particularly nervousness and anxiety (Harkness & McNulty, 1994, p. 308). Finally, the Introversion/Low Positive Emotionality factor is related to a person's propensity to feel positive emotions and to pursue interpersonal relationships versus anhedonia and not pursuing close relationships (Harkness & McNulty, 1994, pp. 308-9).

After the PSY-5 constructs were developed, PSY-5 scales were developed to assess for the constructs using items from the Minnesota Multiphasic Personality Inventory – 2 (MMPI-2; Butcher et al., 2001; Harkness, McNulty, & Ben-Porath, 1995). After the MMPI-2 PSY-5 scales were created, Arnau, Handel, & Archer (2005b) constructed lower-order facet-level trait subscales of the MMPI-2 PSY-5 through principal component analyses, which yielded scores for some of the more specifically defined constructs within each PSY-5 domain. Subsequent research following the initial creation of the facets revealed that the factor structures of some of the facets were not stable across different populations (i.e., psychiatric inpatient, psychiatric outpatient, and medical patients; Arnau, Handel, & Archer, 2005a). Thus, principal components analyses were again used to re-structure the facet scales, with an additional criterion that each factor had to demonstrate high replicability across inpatient, outpatient, and medical settings (i.e., congruence coefficients greater than or equal to .90; Arnau & Handel, 2006). The resulting facet scales were highly similar to the original facets with the exception of the Disconstraint domain having three facets instead of two, and the Negative Emotionality/Neuroticism domain went from two facets to four facets (Arnau &

Handel, 2006). Importantly, however, the factor structures of the new facet scales were highly replicable across psychiatric outpatient, psychiatric inpatient, and medical settings.

The Aggressiveness domain has facets of Physical/Instrumental Aggression, Assertiveness, and Grandiosity/Indignation (Arnau & Handel, 2006). The Psychoticism domain has Paranoia, Mistrust/Withdrawal, and Psychotic Experiences as its facets (Arnau & Handel, 2006). Antisocial History, Norm Violation, and Impulsivity/Low Harm Avoidance are the facets of the Disconstraint domain (Arnau & Handel, 2006). The Neuroticism/Negative Emotionality domain has Angry Hostility, Dysphoria, Worry/Stress, and Phobias as its facets. Introversion/Low Positive Emotionality's facets are Disengagement/Anhedonia, Low Sociability, and Low Diligence/Hypomania (Arnau & Handel, 2006). Use of the facet-level scales in combination with the PSY-5 domain scales has the potential to provide a more comprehensive picture of pathological personality traits as opposed to evaluating the domain cores in isolation. Additionally, the PSY-5 model may overcome the limitations of trying to fit all pathological personality traits on the extreme poles of the FFM by using domains that, instead, emerged from factor analyses of trait descriptions of pathological personality traits. Thus, this model may be more firmly anchored to personality psychopathology as it naturally exists in people, and it accounts for more variability than might be afforded by trying to measure personality pathology as simply extremes of normal personality traits such as those of the FFM.

Sex Addiction and Pathological Personality Traits

Distinctive personality traits of sex addicts have been examined from a number of different perspectives. Insecure adult attachment, associated with childhood abuse and

insecure childhood attachment, has been theoretically associated with sexual compulsivity from the developmental and attachment perspectives (Adams & Robinson, 2001, Schwartz & Southern, 1999). Additionally, theoretical research has proposed that affective disregulation, shame, low self-esteem, eroticized rage, anxiety, reenactment of trauma, obsessive-compulsive-like behaviors, and overcontrol/undercontrol of sexuality are characteristics of sex addicts (Adams & Robinson, 2001; Austin, 1998; Schwartz, 1992; Schwartz & Southern, 1999). These characteristics may be expressed in a way similar to personality traits.

Sex addiction has been associated with the *DSM-IV* personality disorders. Prevalence rates for comorbid personality disorders in sex addicts have been found to range between 24-83% (see Table 1: Black et al., 1997; Raymond et al., 2003). Personality disorders from Clusters B and C are the most common for sex addicts, although one study found that borderline personality disorder was not significantly comorbid in a sample of male sex addicts (see Table 1: Black et al., 1997; Lloyd et al., 2007; Raymond et al., 2003).

There are mixed results regarding associations between specific pathological personality traits and sex addiction. Austin (1998) found that sex addicts had higher levels of depression and state anxiety and lower self-esteem than non-sex addicts, but did not have significantly different scores when comparing trait anxiety. Bradford (1997) found that sex addicts had clinically elevated scores (> 65T) on the MMPI-2 Psychopathic Deviate and Schizophrenia scales, which measure issues with authority, acting out behaviors, and thought disturbances. Sex addicts are more "interpersonally sensitive" than non-addicts (Raviv, 1993, p. 26). Constraint (Lloyd et al., 2007) and

Control (Raymond et al., 2003) have been negatively associated with impulsivity and compulsive sexual behaviors.

Table 1

Personality Disorders and Sex Addiction Previous Research

Studies*:	Black et al., 1997			Raymond et al., 2003	Lloyd et al., 2007
Measures:	Structured Interview for Personality Disorders – DSM-III	Personality Diagnostic Questionnaire, Revised	Consensus Diagnosis	SCID-P and SCID from the DSM-III-R - Current	Data collected from patient charts and assessed using DSM-IV PD criteria
PD:	% of N = 36	% of N = 34	% of N = 34	% of N = 24	% of N = 87
Paranoid	25	32	15	20	
Schizoid	3	15	0		
Schizotypal	3	24	3		
Narcissistic	14	35	6	18	
Antisocial	19	29	6	11	
Borderline	8	50	9	5	1
Histrionic	28	35	21		
Avoidant	19	15	6	15	
Dependant	6	6	3		
Obsessive-Compulsive	17	21	15	15	
Passive-Aggressive	28	15	12	20	
Any PD	83	82	44	46	24

Note : *Tables adapted from Black et al., 1997; Raymond et al., 2003; Lloyd et al., 2007.

Extraversion, Antagonism (Miller et al., 2004), and Negative Emotionality have been positively correlated with risky health behaviors such as having multiple sexual partners (Caspi et al., 1997) in young adults whereas Agreeableness (Vollrath, Knoch, & Cassano, 1999) and Constraint (Miller, 2010) have been negatively related to these behaviors.

A few key studies have specifically observed the relationship between pathological personality traits, measured by the MMPI-2 PSY-5 scales, and compulsive sexual behaviors. Lee and Forbey (2010) found, in a non-clinical sample of undergraduates (Men, N = 233, Women, N = 531), sexual preoccupation scores to have small to moderate statistically significant associations ranging from .24 to .39 with all of the PSY-5 factors except Introversion/Low Positive Emotionality, which had a very weak association

In a clinical outpatient sample of men (N = 151) seeking treatment for "out of control sexual behavior," it was found that statistically significant zero-order, small effects, correlations were found between the Sexual Compulsivity Scale (SCS) and the MMPI-2 PSY-5 factors of Psychoticism (.16), Disconstraint (.21), and Negative Emotionality (.29) (Reid & Carpenter, 2009a, p. 176). The findings of this study may have been limited due to the SCS primarily measuring a single construct, sexual compulsivity, not adequately accounting for the heterogeneous nature of different behavioral expressions and cognitions of sex addiction.

In contrast, Arnau, Green, Blazek, Todd, and Carnes (2011) found in a clinical sample of men (N = 228) seeking treatment for sex addictions that MMPI-2-RF PSY-5 personality traits of Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) predicted Aggressive/Hostile/Pain, Preoccupied/Indiscriminant, Abuse of Trust or Power, and Isolated/Predatory higher-order factors of sexually-addictive behaviors and cognitions, measured by a multidimensional assessment of sex addiction, the Sexual Dependency Inventory – Revised (SDI-R). Additionally, the PSY-5 Psychoticism scale

negatively predicted the Isolated/Predatory-type sexual addiction behaviors and cognitions (see Table 2; Arnau et al., 2011).

Table 2

Sex Addiction Factors Predicted by MMPI-2 RF PSY-5 Scales

SDI-R Higher-Order Factor	R	MMPI-2 RF PSY-5 Scale Predictors	Beta	*p*
Aggressive/Hostile/Pain	.413	DISC-r	.333	<.001
		NEGE-r	.237	<.01
Preoccupied/Indiscriminant	.301	DISC-r	.222	<.01
		NEGE-r	.206	<.05
Abuse of Trust or Power	.344	DISC-r	.191	<.01
		NEGE-r	.273	<.01
Isolated/Predatory	.488	PSYC-r	-.166	<.05
		DISC-r	.370	<.001
		NEGE-r	.293	<.001

Table adapted from Arnau et al., 2011

It is clear from these key studies that the PSY-5 scales of Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) may be moderately associated with sexual compulsivity in clinical samples of people seeking treatment for various sex addictions (Arnau et al., 2011; Reid & Carpenter, 2009a) and similar findings have been found in a non-clinical sample (Lee & Forbey, 2010). The findings for the PSY-5 Psychoticism scale show a positive association with sexual compulsive behavior in a non-clinical sample (Lee & Forbey, 2010) while being a negative predictor, albeit small, of Isolated/Predatory type sexual behaviors and cognitions in a clinical sample (Arnau, et al., 2011).

Little is known about the extent to which specific pathological personality traits are related to different types of compulsive sexual behaviors. As mentioned above, few studies have utilized the PSY-5 assessment in a sex addict sample and only one study separated the sex addiction construct into more than one factor. These past studies may have missed more specific relationships between the individual pathological personality domains and specific behavioral manifestations of sex addiction because they measured only a unidimensional construct of hypersexuality and only measured five broad pathological personality traits. One way to build upon and extend the previous findings is to increase the specificity of the analyses by utilizing higher-order Sexual Dependency Inventory-4.0 (SDI- 4.0) factors of sex addiction and utilizing the facet traits of the PSY-5. Arnau et al. (2011) studied the PSY-5 domains in relation to four higher-order factors made up of the older SDI-R behavioral and power scales. However, more recently, the new SDI-4.0 (Green, Arnau, Carnes, & Carnes, 2013) scales were factor-analyzed again with a much larger sample, and a seven-factor higher-order solution emerged (Arnau, Carnes, & Green, 2013). The higher-order factors were given the following labels: Pain and Role Playing, Hostility and Exploiting the Vulnerable, Sexualized Attachment, Isolated and Self-Stimulation, Swinging and Public Anonymous, Networking for Anonymous Sex, and Drug and Sex Trade Use. The current study will expand upon the findings of Arnau et al. (2011) by assessing the relationships among the seven higher-order factors of the SDI-4.0 and the PSY-5 domains and facet traits.

The purpose of the current study was to analyze the relationships between multiple factors of sex addiction and multiple higher- and lower-order factors (facet traits) of pathological personality traits from bivariate and multivariate perspectives

through zero-order correlations, multiple regression analyses, and canonical correlation analyses (CCA). Thus, this study was intended to discover specific relationships between distinct expressions of sex addiction and pathological personality traits and to better account for the heterogeneity of the behavioral and cognitive manifestations of sexual addiction. In addition, the study was intended to provide more information regarding the construct validity of the facet trait scales of the MMPI-2 PSY-5 domains and the SDI-4.0 seven higher-order factors in a sex addict sample.

The current study is important because compulsive sexual behavior is associated with substantial "subjective distress, social or occupational impairment, or legal and financial consequences" (Black et al., 1997, p. 243). Sexual compulsivity can become debilitating in all areas of the addict's life and can also contribute to sexual exploitation of others; thus, pursuing a deeper understanding of it is an important social issue that needs to be addressed. This study has implications for the treatment of those with sexual addictions. If meaningful and unique patterns of relationships were found between pathological personality traits and specific higher-order factors of sexual compulsive behaviors, treatment can be tailored to address the specific personality traits that may be contributing to the sexual compulsive behaviors. Additionally, there may be some sexual compulsive behaviors where pathological personality traits exert greater influence. Knowledge of these differences may be useful in helping clinicians adapt their treatment plans accordingly. This study sought to increase the clinical utility and usefulness of the PSY-5 of the MMPI-2 by giving clinicians the ability to identify which pathological personality traits are associated with specific sexual compulsive behaviors. If specific pathological personality traits were found to be meaningfully associated with specific

higher-order factors of sexual compulsive behaviors, it could be argued that treatments designed to address personality pathology should be included in sexual addiction treatment plans, which would represent an addition to the current sexual addiction treatment paradigm.

CHAPTER II

HYPOTHESES AND METHOD

Hypotheses

Based on the previous applied and theoretical research of sex addiction in relation to pathological personality traits in clinical settings, summarized in Chapter I, the following hypotheses were proposed:

1. The Disconstraint domain of the PSY-5 and its corresponding Impulsivity/Low Harm Avoidance facet trait would be elevated for the sexual addicts and have positive relationships with the seven higher-order factors of the SDI-4.0, with the strongest relationships being with the Pain/Role Playing and Hostility/Exploiting the Vulnerable factor scale scores.

2. The Negative Emotionality/Neuroticism (NEGE) factor of the PSY-5 would have a positive association with the seven higher-order factors of the SDI-4.0, with the strongest relationships being with the Hostility/Exploiting the Vulnerable and Isolated/Self-Stimulation factor scale scores.

3. The Psychoticism (PSYC) factor of the PSY-5 would have a positive relationship with six of the higher-order factors of the SDI-4.0, but have a negative relationship with the Isolated/Self-Stimulation factor scale score. Furthermore, the mistrust/withdrawal facet, from the Psychoticism factor, would be elevated due to the attachment disturbances common among sex addicts.

Participants

Archival data from the joint sex addiction research project of the Association for Addiction Research and the University of Southern Mississippi was used for this project.

These data included item-level responses to the Minnesota Multiphasic Inventory-2 (MMPI-2) and the Sexual Dependency Inventory – 4.0 (SDI – 4.0). The sample for this study included mainly inpatient and some outpatient sex addicts who sought or were required to attend treatment for sex addiction behaviors. Convenience sampling was employed to recruit 558 male participants who were being treated for sexual addiction from 15 sites around the United States. Data screening was conducted. Standard criteria for assessing validity of the MMPI-2 were used; however, because the sample was a clinical sample, no participants were excluded if their K or F scales were elevated. Eleven participants were excluded due to their MMPI-2 being invalid. Two participants were excluded because they were assessed to be multivariate outliers using Mahalanobis Distances as a standard. Finally, five participants were excluded because there were six or more months between their MMPI-2 and SDI-4.0 administration dates. This resulted in a total of 540 participants whose data were used for the current study analyses.

The sample demographics are as follows. Age: Mean = 43.29, SD = 12.22, Range = 18-78 years old; Ethnicity: 1.3% Asian, 2% African-American, 4.8% Hispanic, 4.3% Other, 87.6% Caucasian; Relationship Status: 9.1% Involved in Primary Relationship, 58.5% Married, 5.9% Divorced; Sexual Orientation: 3.7% Bisexual, 7.2% Gay/Lesbian, 85.9% Heterosexual, 3.1% Unsure; Education: 1% Some high school or less, 1% Vocational/Trade school, 6.7% High school graduate, 31.3% Some college, 59.6% Post graduate; Annual Income: 14.4% Under $20,000, 9.1% $20 - $40,000, 8.9% $40 - $60,000, 5.7% $60 - $75,000, 12.6% $75 - $100,000, 15.6% $100 - $150,000, 8.7% $150 - $200,000, 5.2% $200 - $250,000, 10.4% $250 - $500,000, 8.9% Over $500,000; Religious or Spiritual Preference: 3.3% Atheist (there is no God/gods) or I don't know if

there is a God, 64.8% Jewish, Catholic, Protestant, 19.8% Belief in a higher power without religious affiliation, 12.0% Unsure/exploring spiritual/religious beliefs.

IRB approval was obtained from the University of Southern Mississippi Institutional Review Board for the initial data collection, as well as for the use of the archival data for the current study (Appendix A). Subjects provided informed consent before taking the tests. The MMPI-2 and SDI-4.0 were administered during treatment for sex addiction. Scored MMPI-2 interpretive reports were provided to the participant's treating mental health professional to aid in treatment planning.

Instrumentation

Sexual Dependency Inventory-4.0

The SDI-4.0 (Green et al., 2013) is a self-report measure of the frequency of compulsive sexual behaviors and cognitions consisting of 206 items. Each item is rated twice, one rating assessing the frequency of engaging in the behavior described by the item, and one rating assessing the level of power or preoccupation the particular behavior holds in the participant's mind, with both ratings using a 6-point Likert-type scale. These two-component item ratings are used to form 21 behavioral scales, assessing frequency of sex addiction behaviors in different categories, and 15 power scales, assessing the level of mental preoccupation with certain sex addiction behaviors (see Table 3; Green et al., 2013).

The original SDI (Carnes, 1988) was later revised (SDI-R; Carnes & Delmonico, 1996) to include new items covering internet pornography and cybersex behaviors, and also a second Likert rating scale was added for all items such that respondents were asked to rate not only frequency with which they engaged in the behaviors, but also the

perceived *power* each behavior has on them. Subsequently, an unpublished study evaluated the factor structure of the SDI-R frequency and power items in a large (N > 700) clinical sample (Green, Arnau, Carnes, & Carnes, 2008), resulting in the third edition (SDI-3; Carnes & Carnes, 2011). Finally, the fourth edition resulted from new subscale structure recommendations from Green et al. (2013) based upon factor analyses in two very large (N > 1,300) clinical samples.

The alpha coefficients for scores from the original individual SDI-R scales ranged from .90 to .99 in the original clinical sample of sex addicts (Delmonico, Bubenzer, & West, 1998). In the same sample, test-retest reliabilities ranged between .75 and .97 for the frequency subscales scores and between .69 and .92 for power subscales scores (Delmonico et al., 1998). The SDI-4.0's scale structure (Green et al., 2013) yielded Cronbach's alphas in two clinical inpatient and outpatient male sex addict samples (N = 1,315; 1,224), ranging from .725-.935 for the majority of the scale scores and .450 for the Sex Involving Children scale and .593 for the Clothing Fetish scale, two scales that may have very low base rates.

Evidence for criterion-related validity for the original SDI-R has been demonstrated by comparing the mean scale scores of sex-addicts to non-sex addicts. Statistically significant differences were found on all subscale scores except the Exploitive Sex subscale (Delmonico et al., 1998). Concurrent validity for the original SDI-R was tested by comparing results to the Sexual Addiction Screening Test (SAST), and correlations between the measures were found ranging from .30-.78 (Delmonico et al., 1998).

Table 3

SDI-4.0 Higher-Order Factors and SDI-4.0 Scale Loadings

SDI-4.0 Higher Order Factors	Factor Loadings	SDI-4.0 Scales
Pain and Role Playing	.787	Pain Exchange – Frequency
	.736	Object Sex – Frequency
	.730	Sadomasochism – Power/Preoccupation
	.705	Humiliation & Domination – Frequency
	.661	Object Sex – Power/Preoccupation
	.329	Clothing – Frequency
	.311	Home-Produced Pornography – Frequency
Hostility and Exploiting the Vulnerable	.925	Exploiting the Vulnerable – Power/Preoccupation
	.713	Voyeurism & Boundary Invasion – Power/Preoccupation
	.675	Exhibition & Public Anonymous – Power/Preoccupation
	.600	Exploitive Sex, Children – Frequency
	.555	Exploitive Sex, Trust – Power/Preoccupation
	.503	Producing Pornography – Power/Preoccupation
	.479	Sexual Violence & Hostility – Power/Preoccupation
Sexualized Attachment	.829	Exploitive Sex, Trust – Frequency
	.740	Seductive Role Sex – Frequency
	.661	Relationship Addiction – Frequency
	.653	Relationship Obsession – Power/Preoccupation
	.562	Intrusive Sex – Frequency
	.536	Paying for Sex, Power – Frequency
Isolated and Self-Stimulation	.786	Preoccupied Fantasizing – Power/Preoccupation
	.725	Fantasy & Consequences – Frequency
	.587	Pornography Use – Frequency
	.388	Voyeurism and Covert Intrusion – Frequency
Swinging and Public Anonymous Sex	.872	Cruising Behavior – Frequency
	.850	Swinging – Frequency
	.532	Exhibitionism – Frequency
	.519	Swinging – Power/Preoccupation
Networking for Anonymous Sex	.872	Phone Sex – Frequency
	.850	Phone Sex – Power/Preoccupation
	.532	Anonymous Networking – Power/Preoccupation
	.519	Anonymous Networking – Frequency
Drug & Sex Trade Use	.782	Paying for Sex, Commercial – Frequency
	.758	Paying for Sex, Commercial or Power – Power/Preoccupation
	.630	Drug Interaction – Frequency
	.622	Drug Interaction – Power/Preoccupation

Note. *Adapted from Green et al., 2013; only primary factor loadings shown.*

SDI-4.0 Higher-Order Factor Scales

Higher-order factors of the SDI-4.0 were identified in a principal components analysis of the SDI-4.0 scale score correlations and a parallel analysis showed a seven-factor solution which explained 66.8% of the variance (Green et al., 2013). Table 3 indicates the individual scales which load on each higher-order factor. Factor 1, Pain and Role Playing, is primarily defined by behaviors that involve pain, risk and role playing, and preoccupation with sadomasochism and object use. Factor 2, Hostility and Exploiting the Vulnerable, involves mental preoccupation with hurting and exploiting others sexually and also includes the behavioral scale of exploitation of children. Factor 3, Sexualized Attachment, is defined by external behaviors that involve seduction, obsession, and conquest but also includes an obsessive preoccupation with relationships. Factor 4, Isolated and Self-Stimulation, is made up of behaviors that are not connected to other people and mental preoccupation with fantasy. Factor 5, Swinging and Public Anonymous Sex, is defined by behaviors of group sex, exhibitionism, and cruising for anonymous sexual partners. Factor 6, Networking for Anonymous Sex, is characterized by behavior and preoccupation with finding individual sexual partners through various means such as Internet sites or networking services. Factor 7, Drug & Sex Trade Use, is defined by both behaviors and mental preoccupation with using drugs with sex, using the sex trade, and soliciting sex with money or drugs. Scores from the seven higher-order factor-based subscales had the following Cronbach's alpha reliability coefficients in the Green et al. (2013) sample: Pain and Role Playing (α = .821), Hostility and Exploiting the Vulnerable (α = .813), Sexualized Attachment (α = .819), Isolated and Self-Stimulation

(α = .829), Swinging and Public Anonymous Sex (α = .692), Networking for Anonymous Sex (α = .767), Drug and Sex Trade Use (α = .774).

Minnesota Multiphasic Personality Inventory-2

The Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher et al., 2001) is one of the most widely used personality inventories in clinical settings. It is a paper and pencil test that consists of 567 items and yields validity scales, clinical scales, and supplemental scales (Graham, 2011). For the current study, the scales used from the MMPI-2 were the PSY-5 domains and facet scales. Harkness, et al. (1995) used a replicated rational selection procedure, utilizing 139 items from the MMPI-2, to develop scales to assess the previously discussed PSY-5 constructs of Aggressiveness (AGGR), Psychoticism (PYSC), Disconstraint (DISC), Neuroticism/Negative Emotionality (NEGE), and Introversion/Low Positive Emotionality (INTR). Aggressiveness is characterized by controlling behavior or "offensive aggression" (Harkness & McNulty, 1994, p. 306). Psychoticism relates to a person's "ability to model self, others, and the external object world in a manner that accurately reflects and predicts the events that surround us" (Harkness & McNulty, 1994, p. 307). Disconstraint primarily measures a person's impulsiveness and norm violation/antisocial behaviors (Harkness & McNulty, 1994). The Neuroticism/Negative Emotionality focuses on negative affect, particularly nervousness and anxiety (Harkness & McNulty, 1994, p. 308). Finally, the Introversion/Low Positive Emotionality factor measures the propensity to feel positive emotions and pursue intimate relationships versus not enjoying life and not pursuing close relationships (Harkness & McNulty, 1994, pp. 308-309). The MMPI-2 PSY-5

scales were chosen for the current study because of their demonstrated utility for capturing both normal and maladaptive levels of these broad personality traits.

A meta-analysis of 63 studies reporting internal consistency reliability of the PSY-5 scores found the following mean alphas: AGGR (α = .63), PSYC (α = .77), DISC (α = .62), NEGE (α = .83), INTR (α = .75) (Rouse, 2007). The same study found no significant gender differences in the reliability of the PSY-5 scale scores and higher reliability was found in clinical samples compared to non-clinical samples.

Scores from the MMPI-2 PSY-5 scales have demonstrated construct validity for measurement of personality psychopathology by specifically predicting personality disorder scores on the MMPI-2 PD scales (Bagby, Ryder, Ben-Dat, Bacchiochi, & Parker, 2002) and predicting SCID-II Personality Disorder symptom counts for all ten *DSM-IV* personality disorders (Bagby, Sellbom, Costa, & Widiger, 2008). Additionally, the PSY-5 has proven superior in predicting the more *externalizing* and thought disturbance personality disorders on the SCID-II-PQ when compared to the five-factor model NEO PI-R (Bagby et al., 2008). Rouse (1997) found that the MMPI-2 PSY-5 also demonstrated criterion and concurrent validity when correlating PSY-5 scores with "empirically-derived symptom scales" (mean r = .41, p. 53).

MMPI-2 PSY-5 Facet Subscales – Revised

As previously mentioned, the revised MMPI-2 PSY-5 facet scales were constructed using factor analysis and provide more specific definitions of the components of the five domains. The Aggressiveness domain has facets of Assertiveness, Physical/Instrumental Aggression, and Grandiosity/Indignation (Arnau & Handel, 2006). Sample items for the facets include Physical/Instrumental Aggression - "When people do

me a wrong, I feel I should pay them back if I can, just for the principle of the thing" and "At times I feel like picking a fist fight with someone," Assertiveness - "I am easily downed in an argument" and "I strongly defend my own opinions as a rule," Grandiosity/Indignation - "I have often had to take orders from someone who did not know as much as I did" and "I have often found people jealous of my good ideas, just because they had not thought of them first" (Arnau & Handel, 2006).

The Psychoticism domain has facets of Psychotic Experiences, Paranoia, and Mistrust/Withdrawal (Arnau & Handel, 2006). Sample items for the facets include: Paranoia - "If people had not had it in for me, I would have been much more successful" and "I believe I am being plotted against," Mistrust/Withdrawal – "Most anytime I would rather sit and daydream than do anything else" and "It is safer to trust nobody," Psychotic Experiences – "Evil spirits possess me at times I often hear voices without knowing where they come from" and "someone has control over my mind" (Arnau & Handel, 2006).

Antisocial History, Norm Violation, and Impulsivity/Low Harm Avoidance are the facets of the Disconstraint domain (Arnau & Handel, 2006). Sample items for the facets include: Antisocial History – "I was suspended from school one or more times for bad behavior" and "I have never been in trouble with the law," Norm Violation – "I enjoy gambling for small stakes" and "It is all right to get around the law if you don't actually break it," Impulsivity/Low Harm Avoidance – "I am not afraid of fire" and "I often must sleep over a matter before I decide what to do" (Arnau & Handel, 2006).

The Neuroticism/Negative Emotionality domain has Angry Hostility, Dysphoria, Worry/Stress, and Phobias as its facets (Arnau & Handel, 2006). Sample items for the

facets include Angry Hostility – "I am not easily angered" and "Sometimes I get so angry and upset I don't know what comes over me," Dysphoria – "I feel anxiety about something or someone almost all the time" and "I deserve severe punishment for my sins," Worry/Stress – "I frequently find myself worrying about something" and "I am not feeling much pressure or stress these days," Phobias – "I am afraid to be alone in the dark" (Arnau & Handel, 2006).

Introversion/Low Positive Emotionality's facets are Disengagement/Anhedonia, Low Sociability, and Low Diligence/Hypomania (Arnau & Handel, 2006). Sample items for the facets include Disengagement/Anhedonia – "My daily life is full of things that keep me interested" and "I usually feel that life is worthwhile," Low Sociability – "I enjoy social gatherings just to be with people" and "I am never happier than when I am by myself," Low Diligence/Hypomania – "Sometimes without any reason or even when things are going wrong I feel excitedly happy, 'on top of the world'" and "I find it hard to set aside a task that I have undertaken, even for a short time" (Arnau & Handel, 2006).

When the original facets for the PSY-5 were released, they were found to have two or three facet traits that had unacceptable reliabilities (α = .39-.87; Arnau et al., 2005; see also Wang, Zhang, Shi, Zhou, & Li, 2010). The convergent validity between the some facets of individual domains was limited and the discriminant validity coefficients between a few facets across the five domains were elevated (Quilty & Bagby, 2007). However, after the facet traits were reconstructed, a study in medical and inpatient settings found factor congruencies across different samples ranging between .90-.99 for the revised facets (Arnau & Handel, 2006). Another study, seeking to replicate the results in a clinical setting, found the following reliability coefficients: AGGR1

Physical/Instrumental Aggression (α = .70), AGGR2 Assertiveness (α = .72), AGGR3 Grandiosity/Indignation (α = .58), DISC1 Antisocial History (α = .68), DISC2 Norm Violation (α = .68), DISC3 Impulsivity/Low Harm Avoidance (α = .42), NEGE1 Angry Hostility (α = .81), NEGE2 Dysphoria (α = .80), NEGE3 Worry/Stress (α = .66), NEGE4 Phobias (α = .66), INTR1 Disengagement/Anhedonia (α = .83), INTR2 Low Sociability (α = .79), INTR3 Low Diligence/Hypomania (α = .49), PSYC1 Paranoia (α = .68), PSYC2 Mistrust/Withdrawal (α = .71), PSYC3 Psychotic Experiences (α = .79; Arnau, Handel, & Archer, 2007).

The facet trait scales were empirically derived through factor analysis and were validated by evaluations of correlations with other relevant constructs. These facets were correlated with scales from the Nursing Behavior Index (NBI), Brief Psychiatric Rating Scale (BPRS), and Symptom Checklist–90 (SCL-90) and "most facets demonstrated [a] pattern of noteworthy correlations with both self-report and clinician-rated behaviors" with the exceptions of INTR3 Low Diligence/Hypomania, NEGE4 Phobias, and DISC3 Impulsivity/Low Harm Avoidance (Arnau, Handel, & Archer, 2007) which the researchers noted will need further study to determine if they yield scores that are reliable and enough to be useful.

CHAPTER III

PROCEDURE

Data Analysis

First, T-scores based upon the MMPI-2 normative sample were generated for the PSY-5 scales to evaluate mean PSY-5 profiles for sex addicts relative to the normative MMPI-2 sample. Additionally, mean scores were generated for the PSY-5 facet trait scales. Second, zero-order correlations were run between the PSY-5, PSY-5 facet traits, and the SDI-4.0 higher-order factors. Third, multiple regression analyses were conducted to see how each PSY-5 domain and facet trait related to the higher-order factors of sexual compulsive behaviors. Finally, canonical correlations were used to analyze the relationship between the PSY-5 traits and the SDI-4.0 higher order factors of sexual compulsive behaviors at the multivariate level.

Analytic Plan for Each Hypothesis

The following procedures were used to evaluate the hypotheses of the current study.

1. Zero-order correlations between the PSY-5, PSY-5 facet traits, SDI-4.0 higher-order factors, and the SDI-4.0 individual scales were run to determine the bivariate relationships between each of the variables.

2. Multiple regression analyses were conducted to see how each PSY-5 domain trait and its respective facet traits relate to each of the seven SDI-4.0 higher-order factors of sexual compulsive behaviors. Seven regression analyses were run, one for each SDI-4.0 higher-order factor, with a single SDI-4.0 higher-order factor-based scale score as the dependent variable and with all five PSY-5 domain trait scales as predictors. Then, seven

regression analyses were run, one for each SDI-4.0 higher-order factor, with a single SDI-4.0 higher-order factor-based scale score as the dependent variable and with all of the facet scales from all five PSY-5 domains as predictors.

3. Finally, two canonical correlation analyses (CCA) were run. For the first CCA, all five PSY-5 domain scores were entered as a set of predictors and all seven SDI-4.0 factor-based scale scores were entered as a set of dependent variables. In the second CCA, the entire set of PSY-5 facet traits were entered as predictors and all seven SDI-4.0 factor-based subscale scores were entered as a set of dependent variables.

CCA was the appropriate multivariate analysis for the variable sets of this study because of its ability to control for Type-I error rates and ability to uncover mutual yet independent relationships between two variable sets (Stevens, 1996; Thompson, 2000). This multivariate approach often enables larger variance-accounted-for effect sizes to be found between sets of variables compared to multiple univariate analyses (Thompson, 2000). CCA provides a number of useful statistics that enable the researcher to examine the relationship between sets of variables. CCA begins by finding a pair of linear combinations, called canonical or synthetic variates, with one linear combination composed of all the predictor variables which maximally correlates with the second linear combination, composed of all of the dependent variables (Thompson, 2000). These canonical variates are defined by groups of standardized function coefficients, similar to beta weights in regression, which are the weights applied to the measured variables for computing the canonical function (Thompson, 2000). The number of variables in the smaller of the two sets minus one is equal to the number of canonical functions that are yielded for a given analysis (Thompson, 2000). After all of the variance accounted for by

the first function is removed from the picture, a second pair of linear combinations is formed that is perfectly uncorrelated with the previous linear combination to maximally explain the variance unaccounted for by the first pair of linear combinations. The overall model statistic most commonly used is Wilks's λ which represents the variance unaccounted for by the model. Given that Wilks's λ represents the variance unaccounted for by the model, 1- λ produces an effect size similar to a full-model R^2. Most often, functions that account for 10% or greater variance are interpreted; however, as the current study was exploratory in nature, functions accounting for as little as 6% were included. Thus, the relationships represented by the smaller functions should be interpreted with caution. The analyses also produce structure coefficients which show the correlation between each measured variable and the synthetic variables, and thus are also important aids to interpretation along with the standardized function coefficients. When all of the squared structure coefficients are added up for a given canonical function, this represents the canonical communality coefficient (h^2), which indicates the variance in the observed variables that is represented in a canonical function (Thompson, 2000). The squared canonical correlation coefficients of the CCA represent the percentage of the shared variance across the functions and can be interpreted similarly to an adjusted R^2 in a regression equation.

In summary, this study sought to provide a valuable addition to the current personality and sex addiction literature by analyzing the relationships between multiple factors of sex addiction and multiple higher- and lower-order factors (facet traits) of maladaptive personality traits to potentially allow for the discovery of relationships between the two constructs to better account for the heterogeneity of sex addiction types and

personality traits, and to provide additional empirical evidence that could be used to improve current models of the treatment of sex addiction.

CHAPTER IV

RESULTS

Bivariate Analyses

Bivariate Correlations between PSY-5 scales

Pearson *r* correlations were obtained to assess the relationships between all of the variables (See Table 4). There was a statistically significant, large effect size relationship (see Cohen, 1992) between the PSY-5 Negative Emotionality/Neuroticism (NEGE) and the Psychoticism (PSYC) scales and statistically significant, medium effect size relationships between both the Disconstraint (DISC) and Introversion/Low Positive Emotionality (INTR) scales and the Aggressiveness (AGGR) scale (see Table 4).

Bivariate Correlations: PSY-5 Domains and SDI-4.0 Higher-Order Factors

The PSY-5 DISC and NEGE scales had the strongest associations with all of the SDI-4.0 higher-order factor scales with small to medium effect size (Cohen, 1992) correlations ranging from .218 to .451 followed by the PSYC scale, which had small to medium effect size correlations ranging from .161 to .302 (see Table 4). There were also small effect size correlations between the PSY-5 AGGR scale and the SDI-4.0 Sexualized Attachment higher-order factor scale (SDI-HOF3) and between the PSY-5 INTR scale and the SDI-4.0 Isolated and Self-Stimulation (SDI-HOF4) scale (see Table 4).

Bivariate Correlations: PSY-5 Facets and SDI-4 Higher-Order Factors

The PSY-5 facet scales with the strongest relationships with the SDI-4.0 higher order factor scales were Physical/Instrumental Aggression (AGGR1), Antisocial History

Table 4

Bivariate Correlations, Reliability Statistics, Means, and Standard Deviations

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Mean	45.39	51.68	51.54	59.54	57.82	0.90	4.10	1.69	2.80	3.36	3.13	3.19	2.49	5.41
Standard Deviation (SD)	8.71	10.43	9.96	12.12	11.30	1.18	1.88	1.29	1.77	1.80	1.19	2.57	4.88	2.38
α	.637	.705	.601	.867	.749	.573	.677	.478	.662	.539	.254	.782	.689	.738
PSY-5 AGGR (1)	—													
PSY-5 PSYC (2)	.215	—												
PSY-5 DISC (3)	.340	.233	—											
PSY-5 NEGE (4)	.198	.597	.268	—										
PSY-5 INTR (5)	-.321	.136	-.144	.288	—									
PSY-5 Fct AGGR1 (6)	.547	.439	.364	.515	.089	—								
PSY-5 Fct AGGR2 (7)	.688	-.235	.099	-.297	-.469	-.082	—							
PSY-5 Fct AGGR3 (8)	.720	.419	.279	.401	-.111	.420	.149	—						
PSY-5 Fct DISC1 (9)	.208	.272	.716	.345	.029	.343	-.040	.207	—					
PSY-5 Fct DISC2 (10)	.354	.315	.702	.285	-.147	.351	.078	.352	.323	—				
PSY-5 Fct DISC3 (11)	.051	-.271	.279	-.309	-.170	-.141	.234	-.097	-.090	-.049	—			
PSY-5 Fct NEGE1 (12)	.280	.436	.304	.810	.186	.497	-.126	.352	.360	.247	-.166	—		
PSY-5 Fct NEGE2 (13)	.095	.557	.166	.845	.283	.414	-.358	.353	.221	.241	-.327	.514	—	
PSY-5 Fct NEGE3 (14)	.110	.492	.184	.832	.260	.379	-.265	.384	.259	.219	-.279	.496	.613	—
PSY-5 Fct NEGE4 (15)	.063	.230	.065	.334	.051	.132	-.086	.144	.146	.049	-.151	.235	.197	.210
PSY-5 Fct INTR1 (16)	-.115	.369	.125	.553	.732	.345	-.479	.127	.250	.136	-259	.398	.520	.472
PSY-5 Fct INTR2 (17)	-.291	.048	-.271	.081	.755	-.062	-.303	-.150	-.134	-.254	-.106	.024	.105	.075
PSY-5 Fct INTR3 (18)	-.269	-.300	-.151	-.203	.452	-.211	-.087	-.280	-.082	-.218	.098	-.158	-.206	-.136
PSY-5 Fct PSYC1 (19)	.213	.618	.143	.401	.161	.302	-.071	.301	.164	.196	-.113	.291	.359	.358
PSY-5 Fct PSYC2 (20)	.171	.885	.243	.581	.156	.407	-.272	.403	.276	.349	-.283	.386	.571	.494
PSY-5 Fct PSYC3 (21)	.139	.723	.110	.329	-.003	.271	-.114	.227	.144	.116	-.160	.302	.272	.230
SDI-4 HOF1 (22)	.135	.161	.297	.286	.066	.295	-.089	.158	.288	.215	-.032	.275	.198	.242
SDI-4 HOF2 (23)	.127	.260	.282	.316	.106	.368	-.151	.164	.258	.243	-.083	.243	.282	.256
SDI-4 HOF3 (24)	.208	.302	.365	.418	-.010	.361	-.060	.219	.293	.381	-.105	.326	.352	.358
SDI-4 HOF4 (25)	.016	.274	.304	.451	.214	.323	-.266	.127	.268	.227	-.083	.355	.427	.350
SDI-4 HOF5 (26)	.124	.160	.229	.266	.040	252	-.078	.158	.242	.204	-.083	.228	.219	.211
SDI-4 HOF6 (27)	.068	.163	.218	.247	.020	.179	-.095	.125	.187	.180	-.047	.210	.204	.201
SDI-4 HOF7 (28)	.123	.201	.291	.288	.037	.247	-.030	.090	.316	.249	-.147	.262	.202	.253

Table 4 (continued).

Scale	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Mean	0.18	4.44	5.44	3.99	0.43	2.81	0.80	32.02	24.82	57.39	119.87	13.89	36.69	27.52
Standard Deviation (SD)	0.55	2.71	2.79	1.51	0.71	1.87	1.19	31.10	28.49	34.29	45.03	16.47	35.69	24.18
α	.674	.732	.743	.439	.407	.556	.558	.841	.695	.797	.830	.771	.753	.776
PSY-5 AGGR (1)														
PSY-5 PSYC (2)														
PSY-5 DISC (3)														
PSY-5 NEGE (4)														
PSY-5 INTR (5)														
PSY-5 Fct AGGR1 (6)														
PSY-5 Fct AGGR2 (7)														
PSY-5 Fct AGGR3 (8)														
PSY-5 Fct DISC1 (9)														
PSY-5 Fct DISC2 (10)														
PSY-5 Fct DISC3 (11)														
PSY-5 Fct NEGE1 (12)														
PSY-5 Fct NEGE2 (13)														
PSY-5 Fct NEGE3 (14)														
PSY-5 Fct NEGE4 (15)	—													
PSY-5 Fct INTR1 (16)	.145	—												
PSY-5 Fct INTR2 (17)	.033	.242	—											
PSY-5 Fct INTR3 (18)	-.131	.097	.136	—										
PSY-5 Fct PSYC1 (19)	.146	.315	.051	-.144	—									
PSY-5 Fct PSYC2 (20)	.209	.379	.059	-.276	.401	—								
PSY-5 Fct PSYC3 (21)	.155	.133	-.003	-.224	.308	.386	—							
SDI-4 HOF1 (22)	.063	.230	-.053	-.109	.116	.211	.000	—						
SDI-4 HOF2 (23)	.145	.291	-.032	-.147	.181	.300	.068	.588	—					
SDI-4 HOF3 (24)	.156	.249	-.165	-.167	.230	.327	.099	.472	.558	—				
SDI-4 HOF4 (25)	.096	.415	.005	-.085	.153	.347	.046	.507	.625	.528	—			
SDI-4 HOF5 (26)	.099	.202	-.062	-.131	.112	.215	-.007	.596	.676	.501	.490	—		
SDI-4 HOF6 (27)	.038	.191	-.097	-.100	.111	.188	.043	.508	.481	.454	.480	.622	—	
SDI-4 HOF7 (28)	.120	.210	-.070	-.148	.129	.202	.104	.484	.522	.566	.447	.528	.476	—

Note. *PSY-5 Domain scores are t-scores based off of the normative sample. PSY-5 Facet scores are raw score means.*

(DISC1), Norm Violation (DISC2), Angry Hostility (NEGE1), Dysphoria (NEGE2), Worry/Stress (NEGE3), Disengagement/Anhedonia (INTR1), Mistrust/Withdrawal (PSYC2) with small to medium effect sizes (Cohen, 1992; see Table 4). The low reliability of some of the facet scales, such as Grandiosity/Indignation (AGGR3; α = .478), Impulsivity/Low Harm Avoidance (DISC3; α = .254), Low Diligence/Hypomania (INTR3; α = .439), Paranoia (PSYC1; α = .407), and Psychotic Experiences (PSYC3; α = .558), may have limited the magnitude of their relationships with the other variables.

Regression Analyses

PSY-5 Domains as Predictors of SDI-4.0 Higher-Order Factors

Multiple regression analyses were conducted to see how each PSY-5 domain trait and its respective facet traits related to each of the seven SDI-4.0 higher-order factors of sexual compulsive behaviors and cognitions. Results were interpreted in terms of the amount of variance accounted for and variables important in the prediction were determined by the beta weights and structure coefficients. Seven regression analyses were run, one for each SDI-4.0 higher-order factor, with a single SDI-4.0 higher-order factor-based scale score as the dependent variable and with all five PSY-5 domain trait scales as predictors.

SDI-4.0 Pain and Role Playing with PSY-5 Domains

The regression model (see Table 5) for the PSY-5 domain scales predicting the SDI-4.0 Pain and Role Playing higher-order factor scale (SDI-HOF1) was statistically significant, $F(5, 533) = 16.99$, $p < .001$, with a medium effect size (adjusted $R^2 = .129$, $f^2 = .148$; see Cohen, 1992). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism

(NEGE) scales were primarily responsible for predicting the SDI-HOF1 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) also exhibited noteworthy correlations with the predicted SDI-HOF1 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-3, with a positive relationship between SDI-HOF1 and the three PSY-5 domains, DISC, NEGE, and PSYC (see Table 5).

SDI-4.0 Hostility and Exploiting the Vulnerable with PSY-5 Domains

The regression model (see Table 6) for the PSY-5 domain scales predicting the SDI-4.0 Hostility and Exploiting the Vulnerable higher-order factor scale (SDI-HOF2) was statistically significant, $F(5, 534) = 19.11$, $p < .001$, with a medium effect size (adjusted $R^2 = .144$, $f^2 = .168$). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF2 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) also exhibited noteworthy correlations with the predicted SDI-HOF2 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-3, with a positive relationship between SDI-HOF2 and the three PSY-5 domains, DISC, NEGE, and PSYC (see Table 6).

SDI-4.0 Sexualized Attachment with PSY-5 Domains

The regression model (see Table 7) for the PSY-5 domain scales predicting the SDI-4.0 Sexualized Attachment higher-order factor scale (SDI-HOF3) was statistically significant, $F(5, 534) = 35.83$, $p < .001$, with a medium effect size (adjusted $R^2 = .244$, $f^2 = .323$). Based upon the variables with statistically significant Beta weights, the PSY-5

Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF3 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) and Aggressiveness (AGGR) also exhibited noteworthy correlations with the predicted SDI-HOF3 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-3, with a positive relationship between SDI-HOF1 and the three PSY-5 domains, DISC, NEGE, and PSYC; however, the positive relationship between Aggressiveness and the SDI-HOF3 scores was not predicted (see Table 7).

SDI-4.0 Isolated and Self-Stimulation with PSY-5 Domains

The regression model (see Table 8) for the PSY-5 domain scales predicting the SDI-4.0 Isolated and Self-Stimulation higher-order factor scale (SDI-HOF4) was statistically significant, $F(5, 534) = 29.04$, $p < .001$, with a large effect size (adjusted $R^2 = .268$, $f^2 = .366$). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF4 scale. While Aggressiveness (AGGR) also had a statistically significant Beta weight in predicting the SDI-HOF4 scale, consultation of the structure coefficients revealed only a small relationship, indicating that it may have been acting as a suppressor variable. Suppressor variables improve the total variance accounted for by the model not by predicting the dependent variable but by removing extraneous variance from other predictors (Courville & Thompson, 2001). Further consultation of the structure coefficients indicated that Psychoticism (PSYC) and Introversion/Low Positive Emotionality (INTR) also exhibited noteworthy correlations with the predicted SDI-HOF4 scores as well. The results for this

regression model lend partial support to the proposed hypotheses 1-2, with a positive relationship between SDI-HOF4 and two PSY-5 domains, DISC and NEGE. The results also lend partial support to the proposed hypothesis 3, with a negative relationship between SDI-HOF4 and the PSY-5 domain AGGR; however, in this model, the relationship appears to occur in the context of AGGR acting as a suppressor variable, accounting for extraneous variance in other predictor variables (see Table 8).

SDI-4.0 Swinging and Public Anonymous Sex with PSY-5 Domains

The regression model (see Table 9) for the PSY-5 domain scales predicting the SDI-4.0 Swinging and Public Anonymous Sex higher-order factor scale (SDI-HOF5) was statistically significant, $F(5, 531) = 11.58$, $p < .001$, with a small effect size (adjusted $R^2 = .090$, $f^2 = .099$). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF5 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) also exhibited noteworthy correlations with the predicted SDI-HOF5 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-2, with a positive relationship between SDI-HOF5 and the two PSY-5 domains, DISC and NEGE. However, the negative relationship between SDI-HOF5 and the PSY-5 domain, PSYC, was not predicted (see Table 9).

SDI-4.0 Networking for Anonymous Sex with PSY-5 Domains

The regression model (see Table 10) for the PSY-5 domain scales predicting the SDI-4.0 Networking for Anonymous Sex higher-order factor scale (SDI-HOF6) was statistically significant, $F(5, 534) = 10.25$, $p < .001$, with a small effect size (adjusted R^2

= .079, f^2 = .086). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF6 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) also exhibited noteworthy correlations with the predicted SDI-HOF6 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-3, with a positive relationship between SDI-HOF6 and the three PSY-5 domains, DISC, NEGE, and PSYC (see Table 10).

SDI-4.0 Drug and Sex Trade Use with PSY-5 Domains

The regression model (see Table 11) for the PSY-5 domain scales predicting the SDI-4.0 Drug and Sex Trade Use higher-order factor scale (SDI-HOF7) was statistically significant, $F(5, 534) = 16.35$, $p < .001$, with a small effect size (adjusted $R^2 = .125$, $f^2 = .143$). Based upon the variables with statistically significant Beta weights, the PSY-5 Disconstraint (DISC) and Negative Emotionality/Neuroticism (NEGE) scales were primarily responsible for predicting the SDI-HOF7 scale. Consultation of the structure coefficients indicated that Psychoticism (PSYC) also exhibited noteworthy correlations with the predicted SDI-HOF7 scores as well. The results for this regression model lend partial support to the proposed hypotheses 1-3, with a positive relationship between SDI-HOF7 and the three PSY-5 domains, DISC, NEGE, and PSYC.

Table 5

Regressions - PSY-5 Predicting SDI-4.0 HOF1 – Pain and Role Playing

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	.737	.462	.370	.503	.034	.363***
PSYC	-.877	.381	-.468	.534	-.044	**.435*** **
DISC	**5.477**	**<.001**	**2.038**	**.372**	**.243**	**.800*** **
NEGE	**4.182**	**<.001**	**1.091**	**.261**	**.226**	**.771*** **
INTR	1.147	.252	.337	.294	.053	.178***

Note. Model Adjusted $R^2 = .129$, $F(5, 533) = 16.989$, $p < .001$

Table 6

Regressions - PSY-5 Predicting SDI-4.0 HOF2 – Hostility and Exploiting the Vulnerable

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	.551	.582	.251	.456	.025	.325***
PSYC	1.738	.083	.842	.484	.087	**.668*** **
DISC	**4.943**	**<.001**	**1.670**	**.338**	**.217**	**.723*** **
NEGE	**3.323**	**.001**	**.787**	**.237**	**.177**	**.812*** **
INTR	1.784	.075	.476	.267	.082	.271***

Note. Model Adjusted $R^2 = .144$, $F(5, 534) = 19.110$, $p < .001$

Table 7

Regressions - PSY-5 Predicting SDI-4.0 HOF3 – Sexualized Attachment

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	.576	.565	.297	.516	.025	**.415*** **
PSYC	.982	.326	.538	.548	.046	**.603*** **
DISC	**5.920**	**<.001**	**2.262**	**.382**	**.244**	**.728*** **
NEGE	**6.784**	**<.001**	**1.816**	**.268**	**.340**	**.834*** **
INTR	-1.642	.101	-.496	.302	-.071	-.019

Note. Model Adjusted $R^2 = .244$, $F(5, 534) = 35.832$, $p < .001$

Table 8

Regressions - PSY-5 Predicting SDI-4.0 HOF4 – Isolated and Self-Stimulation

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	**-2.608**	**.009**	**-1.748**	**.670**	**-.111**	**.030**
PSYC	.035	.972	.025	.711	.002	**.530*** **
DISC	**6.318**	**<.001**	**3.136**	**.496**	**.258**	**.588*** **
NEGE	**7.488**	**<.001**	**2.604**	**.348**	**.372**	**.871*** **
INTR	2.527	.012	.991	.392	.108	**.413*** **

Note. Model Adjusted $R^2 = .268$, $F(5, 534) = 29.035$, $p < .001$

Table 9

Regressions - PSY-5 Predicting SDI-4.0 HOF5 – Swinging and Public Anonymous Sex

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	.666	.506	.181	.272	.032	.395***
PSYC	-.408	.683	-.118	.289	-.021	**.509*** **
DISC	**3.593**	**<.001**	**.727**	**.202**	**.164**	**.729*** **
NEGE	**4.069**	**<.001**	**.576**	**.142**	**.225**	**.848*** **
INTR	.227	.820	.037	.161	.011	.125**

Note. Model Adjusted $R^2 = .090$, $F(5, 531) = 11.578$, $p < .001$

Table 10

Regressions - PSY-5 Predicting SDI-4.0 HOF6 – Networking for Anonymous Sex

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	-.935	.350	-.554	.593	-.045	.230***
PSYC	.201	.841	.126	.629	.010	**.551*** **
DISC	**3.717**	**<.001**	**1.632**	**.439**	**.169**	**.738*** **
NEGE	**3.849**	**<.001**	**1.184**	**.308**	**.213**	**.833*** **
INTR	-.687	.492	-.238	.347	.347	.068

Note. Model Adjusted $R^2 = .079$, $F(5, 534) = 10.250$, $p < .001$

Table 11

Regressions - PSY-5 Predicting SDI-4.0 HOF7 – Drug and Sex Trade Use

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
AGGR	.002	.999	.001	.392	.000	.337***
PSYC	.365	.716	.152	.416	.018	**.551*** **
DISC	**5.192**	**<.001**	**1.506**	**.290**	**.231**	**.799*** **
NEGE	**3.959**	**<.001**	**.805**	**.203**	**.214**	**.792*** **
INTR	.133	.894	.031	.229	.006	.102*

Note. Model Adjusted $R^2 = .125$, $F(5, 534) = 16.349$, $p < .001$

PSY-5 Facets as Predictors of SDI-4.0 Higher-Order Factors

Seven regression analyses were run, one for each SDI-4.0 higher-order factor, with a single SDI-4.0 higher-order factor-based scale score as the dependent variable and with all of the facet scales from all five PSY-5 domains as predictors.

SDI-4.0 Pain and Role Playing with PSY-5 Facets

The regression model (see Table 12) for the PSY-5 facet scales predicting the SDI-4.0 Pain and Role Playing higher-order factor scale (SDI-HOF1) was statistically significant, $F(16, 522) = 7.10, p < .001$, with a medium effect size (adjusted $R^2 = .154, f^2 = .182$; see Cohen, 1992). Based upon the variables with statistically significant Beta weights, the PSY-5 facet scales Physical/Instrumental Aggression (AGGR1) and Antisocial History (DISC1) scales were primarily responsible for predicting the SDI-HOF1 scale. While Psychotic Experiences (PSYC3) also had a statistically significant Beta weight in predicting the SDI-HOF1 scale, consultation of the structure coefficients revealed only a small relationship, indicating that it may have been acting as a suppressor variable.

Table 12

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF1 – Pain and Role Playing

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
Physical/Instrumental Aggression	**1.586**	**.008**	**3.589**	**1.343**	**.136**	**.698*** **
Assertiveness	2.672	.352	-.779	.836	-.047	-.209***
Grandiosity/Indignation	-.932	.958	-.063	1.203	-.003	.373***
Antisocial History	**-.052**	**.001**	**2.675**	**.798**	**.152**	**.680*** **
Norm Violation	3.352	.247	.945	.815	.055	**.508*** **
Impulsivity/Low Harm Avoidance	1.159	.208	1.419	1.126	.054	-.075
Angry Hostility	1.260	.036	1.363	.647	.113	**.651*** **
Dysphoria	2.107	.329	-.741	.759	-.059	**.468*** **
Worry/Stress	-.976	.128	1.088	.713	.083	**.573*** **
Phobias	1.524	.685	-.959	2.358	-.017	.149***
Disengagement/Anhedonia	-.407	.081	1.122	.642	.098	**.545*** **
Low Sociability	1.747	.395	-.420	.493	-.038	-.125**
Low Diligence/Hypomania	-.852	.097	-1.522	.916	-.074	-.258***
Paranoia	-1.662	.747	-.659	2.041	.-015	.273***
Mistrust/Withdrawal	-.323	.320	.942	.945	.056	**.499*** **
Psychotic Experiences	**.996**	**.002**	**-3.698**	**1.175**	**-.142**	**.001**

Note. Model Adjusted $R^2 = .154, F(16, 522) = 7.103, p < .001$

Table 13

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF2 – Hostility and Exploiting the Vulnerable

Variable:	*t*	p	*B*	*SE B*	*β*	Structure Coefficients
Physical/Instrumental Aggression	**4.404**	**<.001**	**5.645**	**1.199**	**.234**	**.786*** **
Assertiveness	-.1.149	.251	-.856	.745	-.056	-.321***
Grandiosity/Indignation	-1.098	.273	-1.179	1.074	-.053	.349***
Antisocial History	2.091	.037	1.490	.712	.092	**.550*** **
Norm Violation	1.603	.110	1.165	.727	.074	**.518*** **
Impulsivity/Low Harm Avoidance	1.024	.306	1.028	1.004	.043	-.177***
Angry Hostility	-.459	.646	-.265	.578	-.024	**.518*** **
Dysphoria	.498	.619	.337	.677	.029	**.602*** **
Worry/Stress	.298	.766	.190	.635	.016	**.547*** **
Phobias	1.609	.108	3.387	2.105	.065	.309***
Disengagement/Anhedonia	2.439	.015	1.396	.572	.133	**.622*** **
Low Sociability	-.948	.344	-.417	.440	-.041	-.069
Low Diligence/Hypomania	-1.929	.054	-1.576	.817	-.084	-.313***
Paranoia	.352	.344	.642	1.822	.016	.385***
Mistrust/Withdrawal	1.881	.061	1.586	.843	.104	**.639*** **
Psychotic Experiences	-2.288	.023	-2.400	1.049	-.101	.145***

Note. Model Adjusted $R^2 = .219$, $F(16, 523) = 9.190$, $p < .001$

Table 14

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF3 – Sexualized Attachment

Variable:	*t*	p	*B*	*SE B*	*β*	Structure Coefficients
Physical/Instrumental Aggression	**2.666**	**.008**	**3.650**	**1.369**	**.126**	**.662*** **
Assertiveness	.405	.685	.345	.850	.019	-.110**
Grandiosity/Indignation	-1.749	.081	-2.144	1.226	-.081	**.402*** **
Antisocial History	1.734	.084	1.410	.813	.073	**.537*** **
Norm Violation	**4.567**	**<.001**	**3.789**	**.830**	**.199**	**.698*** **
Impulsivity/Low Harm Avoidance	.438	.661	.502	1.147	.017	-.193***
Angry Hostility	1.064	.288	.702	.660	.053	**.597*** **
Dysphoria	2.017	.044	1.558	.773	.113	**.646*** **
Worry/Stress	**2.588**	**.010**	**1.878**	**.726**	**.130**	**.657*** **
Phobias	1.574	.116	3.784	2.404	.061	.286***
Disengagement/Anhedonia	.853	.394	.557	.654	.044	**.456*** **
Low Sociability	**-3.379**	**.001**	**-1.699**	**.503**	**-.138**	**-.302*** **
Low Diligence/Hypomania	-.902	.368	-.842	.933	-.037	-.307***
Paranoia	1.077	.282	2.240	2.081	.046	**.422*** **
Mistrust/Withdrawal	1.186	.236	1.142	.963	.062	**.600*** **
Psychotic Experiences	-2.019	.044	-2.417	1.197	-.084	.181***

Note. Model Adjusted $R^2 = .276$, $F(16, 523) = 13.855$, $p < .001$

Table 15

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF4 – Isolated and Self-Stimulation

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
Physical/Instrumental Aggression	1.967	.050	3.489	1.774	.091	**.573*****
Assertiveness	-2.014	.044	-2.219	1.102	-.093	**-.473*****
Grandiosity/Indignation	-2.072	.039	-3.290	1.588	-.094	.226***
Antisocial History	1.986	.048	2.092	1.054	.082	**.475*****
Norm Violation	1.401	.162	1.506	1.075	.060	**.403*****
Impulsivity/Low Harm Avoidance	2.494	.013	3.704	1.485	.098	-.148***
Angry Hostility	2.372	.018	2.027	.855	.115	**.631*****
Dysphoria	**3.426**	**.001**	**3.429**	**1.001**	**.190**	**.759*****
Worry/Stress	.638	.524	.600	.940	.032	**.622*****
Phobias	-.315	.753	-.980	3.114	-.012	.171***
Disengagement/Anhedonia	**3.820**	**<.001**	**3.234**	**.847**	**.194**	**.737*****
Low Sociability	-1.647	.100	-1.073	.651	-.066	.009
Low Diligence/Hypomania	-1.002	.317	-1.211	1.209	-.041	-.151***
Paranoia	-1.290	.198	-3.477	2.695	-.054	.272***
Mistrust/Withdrawal	2.561	.011	3.193	1.247	.132	**.616*****
Psychotic Experiences	**-3.226**	**.001**	**-5.004**	**1.551**	**-.133**	**.081**

Note. Model Adjusted $R^2 = .317$, $F(16, 523) = 15.156$, $p < .001$

Table 16

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF5 – Swinging and Public Anonymous Sex

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
Physical/Instrumental Aggression	1.919	.056	1.399	.729	.100	**.671*****
Assertiveness	-.534	.593	-.241	.452	-.028	-.206***
Grandiosity/Indignation	.002	.999	.001	.652	.000	**.420*****
Antisocial History	2.564	.011	1.112	.434	.119	**.645*****
Norm Violation	1.146	.252	.506	.442	.056	**.542*****
Impulsivity/Low Harm Avoidance	-.037	.971	-.023	.611	-.002	-.222***
Angry Hostility	1.154	.249	.406	.351	.063	**.608*****
Dysphoria	.377	.706	.155	.412	.024	**.583*****
Worry/Stress	.569	.570	.220	.386	.032	**.562*****
Phobias	.640	.522	.819	1.279	.027	.264***
Disengagement/Anhedonia	1.318	.188	.461	.350	.075	**.533*****
Low Sociability	-1.160	.247	-.311	.268	-.053	-.166***
Low Diligence/Hypomania	-1.827	.068	-.908	.497	-.083	-.348***
Paranoia	-.160	.873	-.177	1.107	-.008	.297***
Mistrust/Withdrawal	1.149	.251	.589	.512	.067	**.573*****
Psychotic Experiences	**-3.257**	**.001**	**-2.073**	**.636**	**-.151**	**-.018**

Note. Model Adjusted $R^2 = .114$, $F(16, 520) = 5.325$, $p < .001$

Table 17

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF6 – Networking for Anonymous Sex

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
Physical/Instrumental Aggression	.181	.857	.291	1.069	.010	**.555*****
Assertiveness	-1.081	.280	-1.081	1.000	-.057	-.293***
Grandiosity/Indignation	-.123	.903	-.177	1.441	-.006	.386***
Antisocial History	1.521	.129	1.454	.956	.072	**.580*****
Norm Violation	1.169	.243	1.140	.975	.058	**.556*****
Impulsivity/Low Harm Avoidance	.740	.460	.997	1.348	.033	-.145***
Angry Hostility	1.552	.121	1.203	.775	.086	**.651*****
Dysphoria	.514	.607	.467	.908	.033	**.632*****
Worry/Stress	.887	.376	.756	.853	.050	**.622*****
Phobias	-.704	.482	-1.988	2.825	-.031	.119**
Disengagement/Anhedonia	1.650	.100	1.267	.768	.096	**.591*****
Low Sociability	-2.462	.014	-1.455	.591	-.114	-.301***
Low Diligence/Hypomania	-1.303	.193	-1.429	1.097	-.061	-.308***
Paranoia	.082	.935	.200	2.445	.004	.344***
Mistrust/Withdrawal	.806	.421	.912	1.131	.048	**.583*****
Psychotic Experiences	-1.376	.169	-1.937	1.407	-.065	.132**

Note. Model Adjusted $R^2 = .077$, $F(16, 523) = 3.815$, $p < .001$

Table 18

Regressions - PSY-5 Facets Predicting SDI-4.0 HOF7 – Drug and Sex Trade Use

Variable:	***t***	**p**	***B***	***SE B***	***β***	Structure Coefficients
Physical/Instrumental Aggression	1.251	.212	1.301	1.040	.063	**.574*****
Assertiveness	1.424	.155	.920	.646	.071	-.070
Grandiosity/Indignation	**-2.641**	**.009**	**-2.459**	**.931**	**-.131**	**.210*****
Antisocial History	**4.136**	**<.001**	**2.555**	**.618**	**.187**	**.734*****
Norm Violation	**2.621**	**.009**	**1.652**	**.630**	**.123**	**.578*****
Impulsivity/Low Harm Avoidance	-1.747	.081	-1.522	.871	-.075	-.342***
Angry Hostility	1.444	.149	.723	.501	.077	**.608*****
Dysphoria	-.402	.688	-.236	.587	-.024	**.469*****
Worry/Stress	1.869	.062	1.030	.551	.101	**.587*****
Phobias	.794	.427	1.450	1.826	.033	.278***
Disengagement/Anhedonia	1.940	.053	.963	.496	.108	**.489*****
Low Sociability	-.826	.409	-.315	.382	-.036	-.167***
Low Diligence/Hypomania	-2.226	.026	-1.577	.709	-.099	-.344***
Paranoia	-.174	.862	-.275	1.580	-.008	.299
Mistrust/Withdrawal	.012	.990	.009	.731	.001	**.470*****
Psychotic Experiences	-.187	.852	-.170	.910	-.008	.241***

Note. Model Adjusted $R^2 = .160$, $F(16, 523) = 7.431$, $p < .001$

Further consultation of the structure coefficients indicated that the Norm Violation (DISC2), Angry Hostility (NEGE1), Dysphoria (NEGE2), Worry/Stress (NEGE3), Disengagement/Anhedonia (INTR1), and Mistrust/Withdrawal (PSYC2) scales also exhibited noteworthy correlations with the predicted SDI-HOF1 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF1 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF1 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 12).

SDI-4.0 Hostility and Exploiting the Vulnerable with PSY-5 Facets

The regression model (see Table 13) for the PSY-5 facet scales predicting the SDI-4.0 Hostility and Exploiting the Vulnerable higher-order factor scale (SDI-HOF2) was statistically significant, $F(16, 523) = 9.19$, $p < .001$, with a medium effect size (adjusted $R^2 = .219$, $f^2 = .280$). Based upon the variables with statistically significant Beta weights, the PSY-5 facet scales Physical/Instrumental Aggression (AGGR1) scale was primarily responsible for predicting the SDI-HOF2 scale. Consultation of the structure coefficients indicated that the Mistrust/Withdrawal (PSYC2), Disengagement/Anhedonia (INTR1), Dysphoria (NEGE2), Antisocial History (DISC1), Worry/Stress (NEGE3), Angry Hostility (NEGE1), and Norm Violation (DISC2) scales also exhibited noteworthy correlations with the predicted SDI-HOF2 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF2 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do

lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF2 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 13).

SDI-4.0 Sexualized Attachment with PSY-5 Facets

The regression model (see Table 14) for the PSY-5 facet scales predicting the SDI-4.0 Sexualized Attachment higher-order factor scale (SDI-HOF3) was statistically significant, $F(16, 523) = 13.86$, $p < .001$, with a large effect size (adjusted $R^2 = .276$, $f^2 = .381$). Based upon the variables with statistically significant Beta weights, the PSY-5 facet scales Norm Violation (DISC2), Worry/Stress (NEGE3), Low Sociability (INTR2), and Physical/Instrumental Aggression (AGGR1) were primarily responsible for predicting the SDI-HOF3 scale. Consultation of the structure coefficients indicated that the Dysphoria (NEGE2), Mistrust/Withdrawal (PSYC2), Angry Hostility (NEGE1), Antisocial History (DISC1), Disengagement/Anhedonia (INTR1), Paranoia (PSYC1), and Grandiosity/Indignation (AGGR3) scales also exhibited noteworthy correlations with the predicted SDI-HOF3 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF3 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF3 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 14).

SDI-4.0 Isolated and Self-Stimulation with PSY-5 Facets

The regression model (see Table 15) for the PSY-5 facet scales predicting the SDI-4.0 Isolated and Self-Stimulation higher-order factor scale (SDI-HOF4) was statistically significant, $F(16, 523) = 15.16$, $p < .001$, with a large effect size (adjusted R^2

$= .317, f^2 = .464$). Based upon the variables with statistically significant Beta weights, the PSY-5 facet scales Disengagement/Anhedonia (INTR1) and Dysphoria (NEGE2) were primarily responsible for predicting the SDI-HOF4 scale. While Psychotic Experiences (PSYC3) also had a statistically significant Beta weight in predicting the SDI-HOF5 scale, consultation of the structure coefficients revealed only a small relationship, indicating that it may have been acting as a suppressor variable. Further consultation of the structure coefficients indicated that the Angry Hostility (NEGE1), Worry/Stress (NEGE3), Mistrust/Withdrawal (PSYC2), Physical/Instrumental Aggression (AGGR1), Antisocial History (DISC1), Assertiveness (AGGR2), and Norm Violation (DISC2) scales also exhibited noteworthy correlations with the predicted SDI-HOF4 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF4 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF4 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 15).

SDI-4.0 Swinging and Public Anonymous Sex with PSY-5 Facets

The regression model (see Table 16) for the PSY-5 facet scales predicting the SDI-4.0 Swinging and Public Anonymous Sex higher-order factor scale (SDI-HOF5) was statistically significant, $F(16, 520) = 5.33$, $p < .001$, with a small effect size (adjusted $R^2 = .114, f^2 = .129$). The PSY-5 facet scale Psychotic Experiences (PSYC3) was the only variable that had a statistically significant Beta weight in predicting the SDI-HOF5 scale; however, consultation of the structure coefficients revealed only a small relationship, indicating that it may have been acting as a suppressor variable. Further consultation of

the structure coefficients indicated that the Physical/Instrumental Aggression (AGGR1), Antisocial History (DISC1), Angry Hostility (NEGE1), Mistrust/Withdrawal (PSYC2), Worry/Stress (NEGE3), Norm Violation (DISC2), Disengagement/Anhedonia (INTR1), and Grandiosity/Indignation (AGGR3) scales also exhibited noteworthy correlations with the predicted SDI-HOF5 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF5 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF5 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 16).

SDI-4.0 Networking for Anonymous Sex with PSY-5 Facets

The regression model (see Table 17) for the PSY-5 facet scales predicting the SDI-4.0 Networking for Anonymous Sex higher-order factor scale (SDI-HOF6) was statistically significant, $F(16, 523) = 3.82$, $p < .001$, with a small effect size (adjusted $R^2 = .077, f^2 = .083$). In this model, there were no PSY-5 facet scale variables with statistically significant Beta weights predicting the SDI-HOF6 scale. Consultation of the structure coefficients indicated that the Angry Hostility (NEGE1), Dysphoria (NEGE2), Worry/Stress (NEGE3), Disengagement/Anhedonia (INTR1), Mistrust/Withdrawal (PSYC2), Antisocial History (DISC1), Norm Violation (DISC2), and Physical/Instrumental Aggression (AGGR1) scales exhibited noteworthy correlations with the predicted SDI-HOF6 scores. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF6 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for

this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF6 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 17).

SDI-4.0 Drug and Sex Trade Use with PSY-5 Facets

The regression model (see Table 18) for the PSY-5 facet scales predicting the SDI-4.0 Drug and Sex Trade Use higher-order factor scale (SDI-HOF7) was statistically significant, $F(16, 523) = 7.43$, $p < .001$, with a medium effect size (adjusted $R^2 = .160$, $f^2 = .190$). Based upon the variables with statistically significant Beta weights, the PSY-5 facet scales Antisocial History (DISC1), Grandiosity/Indignation (AGGR3), and Norm Violation (DISC2) were primarily responsible for predicting the SDI-HOF7 scale. Consultation of the structure coefficients indicated that the Angry Hostility (NEGE1), Worry/Stress (NEGE3), Physical/Instrumental Aggression (AGGR1), Disengagement/Anhedonia (INTR1), Mistrust/Withdrawal (PSYC2), and Dysphoria (NEGE2) scales also exhibited noteworthy correlations with the predicted SDI-HOF7 scores as well. The results for this regression model do not support the proposed hypothesis 1, with no statistically significant relationship between SDI-HOF7 and the PSY-5 facet, Impulsivity/Low Harm Avoidance. However, the results for this regression model do lend partial support to the proposed hypothesis 2, with a positive relationship between SDI-HOF7 and the PSY-5 facet, Mistrust/Withdrawal (PSYC2) (see Table 18).

Canonical Correlations Analyses

SDI-4.0 Higher-Order Factors and PSY-5 Domains

The following results are reported according to the model provided in Appendix B of Sherry and Henson (2005, p. 48). A canonical correlation analysis (CCA) was

conducted using all five PSY-5 domain scale scores entered as a set of predictors and all seven SDI-4.0 higher-order factor-based scale scores entered as a set of dependent variables to assess the multivariate relationship between the two sets of variables (see Table 19). Five functions with squared canonical correlations (Rc^2) of .323, .075, .022, .017, and .005 resulted from the analyses. As a whole, the full model across all functions was statistically significant using the Wilks's $\lambda = .599$ criterion, $F(35, 2206.70) = 8.171$, $p > .001$. Using this calculation, this set of five canonical functions accounted for an r^2–type effect size of .401, which indicates that the full model explained approximately 40% of the variance shared between the two variable sets. Most often, functions that account for 10% or greater variance are interpreted; however, as the current study was exploratory in nature, functions accounting for as little as 6% were included. Thus, the relationships represented by the smaller functions should be interpreted with caution. The Rc^2 effects for each function revealed two noteworthy functions (32.34% and 7.49% of the shared variance, respectively).

The standardized canonical function coefficients and structure coefficients for Functions 1 and 2 are presented in Table 20 along with the communalities (h^2) across the two functions for each variable. When looking at the Function 1 coefficients, it can be seen that the most relevant criterion variables were Disconstraint and Negative Emotionality/Neuroticism with secondary contributions from Psychoticism, which had very little predictive contribution to the criterion synthetic variable, indicated by the low function coefficient, but was still moderately related to the criterion synthetic variable, indicated by the moderately large structure coefficient. Concerning the predictor variable set, Sexualized Attachment and Isolated and Self-Stimulation were the primary

Table 19

Canonical Correlations Analysis – PSY-5 and SDI-4.0 Higher Order Factors

Variable	**Function 1**			**Function 2**			h^2
	Function	Structure	r^2_s	Function	Structure	r^2_s	
PSY-5							
Aggressiveness	-0.089	0.220	4.88%	**0.556**	**0.781**	60.94%	**65.82%**
Psychoticism	0.030	**0.572**	32.71%	0.141	0.118	1.38%	34.09%
Disconstraint	**0.522**	**0.685**	46.94%	0.039	**0.330**	10.87%	**57.81%**
Negative Emotionality/Neuroticism	**0.721**	**0.878**	77.07%	-0.102	-0.087	0.75%	**77.82%**
Introversion/Low Positive Emotionality	0.053	0.220	4.84%	**-0.637**	**-0.829**	68.72%	**73.56%**
Rc^2			32.34%			7.49%	
Pain and Role Playing	0.142	**0.628**	39.50%	0.138	0.136	1.85%	41.35%
Hostility and Exploiting the Vulnerable	-0.046	**0.664**	44.04%	0.069	0.055	0.30%	44.34%
Sexualized Attachment	**0.495**	**0.847**	71.75%	**0.878**	**0.494**	24.42%	**96.17%**
Isolated and Self-Stimulation	**0.593**	**0.883**	77.97%	**-1.128**	**-0.450**	20.21%	**98.18%**
Swinging and Public Anonymous Sex	-0.077	**0.540**	29.14%	0.076	0.171	2.92%	32.06%
Networking for Anonymous Sex	-0.047	**0.512**	26.17%	0.073	0.113	1.27%	27.44%
Drug & Sex Trade Use	0.101	**0.632**	39.93%	0.066	0.235	5.50%	**45.43%**
SDI-4.0 HO Factors							

Note. Table formatted according to Thompson (2000). Rc^2 = squared canonical correlation coefficient; r^2_s = squared structure coefficient; h^2 = Communality coefficient

Table 20

Canonical Correlations Analysis – PSY-5 Facets and SDI-4.0 Higher Order Factors

Variable	**Function 1**			**Function 2**		
	Function	Structure	r^2_s	Function	Structure	r^2_s
PSY-5 Facets						
Physical/Instrumental Aggression	0.228	**0.660**	43.60%	-0.131	-0.177	3.12%
Assertiveness	-0.077	**-0.318**	10.09%	**-0.402**	**-0.587**	34.45%
Grandiosity/Indignation	-0.157	**0.329**	10.81%	0.105	-0.176	3.09%
Antisocial History	0.163	**0.546**	29.77%	-0.219	-0.297	8.84%
Norm Violation	0.234	**0.567**	32.16%	**-0.368**	**-0.439**	19.28%
Impulsivity/Low Harm Avoidance	0.112	-0.189	3.20%	**0.370**	0.192	3.69%
Angry Hostility	0.158	**0.647**	41.86%	0.112	-0.010	0.00%
Dysphoria	0.253	**0.724**	52.37%	**0.388**	0.247	6.08%
Worry/Stress	0.146	**0.664**	44.14%	**-0.324**	-0.073	0.53%
Phobias	0.050	0.244	5.98%	-0.206	-0.211	4.47%
Disengagement/Anhedonia	0.236	**0.638**	40.72%	**0.326**	**0.380**	14.46%
Low Sociability	-0.167	-0.127	1.61%	0.102	**0.411**	16.86%
Low Diligence/Hypomania	-0.087	-0.246	6.03%	0.103	0.293	8.57%
Paranoia	-0.018	**0.352**	12.42%	-0.226	-0.197	3.88%
Mistrust/Withdrawal	0.190	**0.637**	40.64%	0.261	0.058	0.34%
Psychotic Experiences	-0.222	0.127	1.61%	-0.202	-0.216	4.68%
Rc^2			37.16%			13.45%
Pain and Role Playing	0.119	**0.633**	40.05%	-0.058	-0.103	1.05%
Hostility and Exploiting the Vulnerable	0.064	**0.721**	52.02%	-0.073	-0.064	0.41%
Sexualized Attachment	**0.492**	**0.848**	71.84%	**-0.621**	**-0.431**	18.61%
Isolated and Self-Stimulation	**0.565**	**0.887**	78.64%	**1.026**	**0.412**	17.01%
Swinging and Public Anonymous Sex	-0.020	**0.580**	33.61%	0.025	-0.121	1.46%
Networking for Anonymous Sex	-0.077	**0.504**	25.38%	0.106	-0.024	0.06%
Drug & Sex Trade Use	0.018	**0.597**	35.60%	**-0.608**	**-0.500**	25.01%
SDI-4.0 HO Factors						

Note. Table formatted according to Thompson (2000). Rc^2 = squared canonical correlation coefficient; r^2_s = squared structure coefficient; h^2 = Communality coefficient

Table 20 (continued).

Variable	Function 3			Function 4			h^2
	Function	Structure	r^2_s	Function	Structure	r^2_s	
PSY-5 Facets							
Physical/ Instrumental Aggression	-0.298	-0.149	2.23%	**0.859**	**0.483**	23.36%	**72.31%**
Assertiveness	0.165	-0.011	0.01%	-0.163	-0.116	1.35%	**45.90%**
Grandiosity/ Indignation	-0.215	-0.293	8.61%	0.116	0.065	0.42%	22.93%
Antisocial History	**0.634**	**0.476**	22.65%	0.191	0.149	2.23%	**63.49%**
Norm Violation	-0.217	-0.225	5.04%	-0.228	-0.119	1.41%	**57.89%**
Impulsivity/Low Harm Avoidance	-0.247	-0.187	3.51%	0.055	0.055	0.31%	10.71%
Angry Hostility	**0.522**	0.291	8.49%	**-0.445**	-0.193	3.71%	**54.06%**
Dysphoria	**-0.383**	-0.163	2.65%	**-0.571**	-0.266	7.08%	**68.18%**
Worry/Stress	0.101	0.038	0.15%	-0.248	-0.207	4.30%	**49.12%**
Phobias	-0.222	-0.120	1.44%	0.205	0.168	2.82%	14.71%
Disengagement/ Anhedonia	0.272	0.172	2.95%	0.178	0.114	1.30%	**59.43%**
Low Sociability	0.296	0.270	7.30%	**0.364**	**0.309**	9.57%	35.34%
Low Diligence/ Hypomania	-0.243	0.007	0.00%	-0.212	-0.120	1.43%	16.03%
Paranoia	**-0.317**	**-0.301**	9.06%	0.051	0.052	0.27%	25.63%
Mistrust/Withdrawal	-0.163	-0.194	3.77%	0.119	0.052	0.27%	**45.02%**
Psychotic Experiences	-0.001	-0.070	0.48%	-0.147	-0.060	0.36%	7.13%
Rc^2			7.00%			6.41%	
Pain and Role Playing	**0.478**	**0.346**	11.96%	**0.346**	**0.333**	11.11%	**64.17%**
Hostility and Exploiting the Vulnerable	**-0.632**	-0.086	0.74%	**1.242**	**0.607**	36.89%	**90.06%**
Sexualized Attachment	**-0.843**	-0.255	6.50%	**-0.537**	-0.160	2.56%	**99.51%**
Isolated and Self-Stimulation	**0.340**	0.158	2.48%	**-0.428**	-0.012	0.01%	**98.14%**
Swinging and Public Anonymous Sex	0.183	0.154	2.37%	-0.057	0.223	4.97%	42.41%
Networking for Anonymous Sex	-0.218	0.073	0.53%	**-0.388**	-0.140	1.95%	27.92%
Drug & Sex Trade Use	**0.956**	**0.523**	27.32%	-0.087	0.024	0.06%	**87.99%**
SDI-4.0 HO Factors							

Note. Table formatted according to Thompson (2000). Rc^2 = squared canonical correlation coefficient; r^2_s = squared structure coefficient; h^2 = Communality coefficient

contributors to the predictor synthetic variable, with secondary contributions from each of the remaining five SDI-4.0 higher-order scales, indicated largely by the structure coefficients. When looking at the Function 2 coefficients, it can be seen that the most relevant criterion variables were Aggressiveness and Introversion/Low Positive Emotionality with secondary contributions from Disconstraint, which had very little predictive contribution to the criterion synthetic variable, indicated by the low function coefficient, but was still moderately related to the criterion synthetic variable, indicated by the moderately large structure coefficient. Concerning the predictor variable set, Isolated and Self-Stimulation was the primary contributor to the predictor synthetic variable, with a secondary contribution from the Sexualized Attachment variable.

SDI-4.0 Higher-Order Factors and PSY-5 Facet Scales

A second canonical correlation analysis (CCA) was conducted using the entire set of PSY-5 facet traits entered as predictors and all seven SDI-4.0 factor-based subscale scores entered as a set of dependent variables to assess the multivariate relationship between the two sets of variables (see Table 20). Seven functions with squared canonical correlations (Rc^2) of .372, .135, .070, .064, .041, .014, and .008 resulted from the analyses. As a whole, the full model across all functions was statistically significant using the Wilks's $\lambda = .444$ criterion, $F(112, 3326.35) = 3.974$, $p > .001$. This set of seven canonical functions accounted for an r^2–type effect size of .556, which indicates that the full model explained approximately 56% of the variance shared between the two variable sets. The Rc^2 effects for each function revealed four noteworthy functions (37.16%, 13.45%, 7.00%, and 6.41% of the shared variance, respectively). The remaining three

functions accounted for only 4.11%, 1.44%, and 0.76% of the remaining variance of the variable sets after the extraction of the variance of the previous functions.

The standardized canonical function coefficients and structure coefficients for Functions 1 through 4 are presented in Table 20 along with the communalities (h^2) across the four functions for each variable. When looking at the Function 1 coefficients, it can be seen that the most relevant criterion variables were Dysphoria, Worry/Stress, Physical/Instrumental Aggression, Angry Hostility, Disengagement/Anhedonia, Mistrust/Withdrawal, Norm Violation, and Antisocial History with secondary contributions from Paranoia, Grandiosity/Indignation, and Assertiveness. Concerning the predictor variable set, Sexualized Attachment and Isolated and Self-Stimulation were the primary contributors to the predictor synthetic variable, with secondary contributions from each of the remaining five SDI-4.0 higher-order scales, indicated largely by the structure coefficients.

When looking at the Function 2 coefficients, it can be seen that the most relevant criterion variable was Assertiveness, with secondary contributions from Dysphoria, Impulsivity/Low Harm Avoidance, Norm Violation, and Disengagement/Anhedonia and Low Sociability. The Worry/Stress scale, though contributing to the criterion synthetic variable, appears to have acted as a suppressor variable, evidenced by its small structure coefficient (r_s = -0.073). Concerning the predictor variable set, Isolated and Self-Stimulation was the primary contributor to the predictor synthetic variable, with secondary contributions from Sexualized Attachment and Drug and Sex Trade Use.

When looking at the Function 3 coefficients, it can be seen that the most relevant criterion variables were Antisocial History and Angry Hostility, with secondary

contributions from Dysphoria and Paranoia. Concerning the predictor variable set, Drug and Sex Trade Use, Sexualized Attachment, and Hostility and Exploiting the Vulnerable were the primary contributors to the predictor synthetic variable, with secondary contributions from Pain and Role Playing, Isolated and Self-Stimulation. In this case, Hostility and Exploiting the Vulnerable appears to be acting as a suppressor variable, indicated by its strong predictive value (i.e., noteworthy function coefficient), but showing virtually no relationship to the criterion synthetic variable, indicated by the very small structure coefficient value (r_s = -0.086).

When looking at the Function 4 coefficients, it can be seen that the most relevant criterion variable was Physical/Instrumental Aggression, with secondary contributions from Dysphoria, Angry Hostility, and Low Sociability. Concerning the predictor variable set, Hostility and Exploiting the Vulnerable was the primary contributor to the predictor synthetic variable, with secondary contributions from Pain and Role Playing, Sexualized Attachment, Isolated and Self-Stimulation, and Networking for Anonymous Sex. In this case, Isolated & Self-Stimulation appears to be acting as a suppressor variable, again, indicated by a strong predictive value, as per the function coefficient, but showing virtually no relationship to the criterion synthetic variable (r_s = -0.012).

CHAPTER V

DISCUSSION

The goal of the current study was to analyze the relationships between multiple factors of behavioral and cognitive manifestations of sex addiction and multiple higher- and lower-order factors (facet traits) of the PSY-5 personality traits, both from bivariate and multivariate perspectives. Additionally, the study sought to gather information regarding the construct validity of the facet trait scales of the MMPI-2 PSY-5 domains and the SDI-4.0 seven higher-order factors in a sex addict sample.

The results of this study largely supported the hypotheses, based on past research findings (Arnau et al., 2011, Lloyd et al., 2007; Raymond et al., 2003), demonstrating the importance of Disconstraint, Negative Emotionality/Neuroticism, and Psychoticism domains in relation to sex addiction behaviors and cognitions with small to medium effect size relationships. The findings regarding the relationship between the Psychoticism domain and the sex addiction behaviors and cognitions were consistent with Bradford's (1997) findings that sex addicts had clinically elevated scores (> 65T) on the MMPI-2 Schizophrenia scales, which measure thought disturbances and psychotic or aberrant experiences.

Additionally, as predicted, the use of facets of the PSY-5 domains and the use of higher-order factors of sex addiction behaviors and cognitions provided a more finely nuanced picture of the relationship between maladaptive personality domains and sex addiction behaviors and cognitions. The PSY-5 facets Dysphoria (NEGE2) and Disengagement/Anhedonia (INTR1) may represent symptoms commonly associated with depression, while Worry/Stress (NEGE3) may represent symptoms similar to trait

anxiety. The elevations of these facets in relation to measures of sexual addiction behaviors and cognitions are consistent with the findings of Austin (1998), who found that sex addicts had higher levels of depression and state anxiety and lower self esteem than non-sex addicts, but less consistent with Austin's (1998) study which found no significant differences in scores when comparing sex addicts to non-sex-addicts on trait anxiety.

It was expected that personality features associated with certain personality disorders, mainly from *DSM-5* Clusters B and C would be found related to measures of sexual addiction behaviors and cognitions (Black et al., 1997; Lloyd et al., 2007; Raymond et al., 2003). Additionally, previous research has asserted that sex addicts are more "interpersonally sensitive" than non-addicts (Raviv, 1993, p. 26). The overall findings of the current study related to the PSY-5 facets appeared to support these previous studies, with Physical/Instrumental Aggression (AGGR1), Antisocial History (DISC1), Norm Violation (DISC2), Angry Hostility (NEGE1), and Mistrust/Withdrawal (PSYC2) all related to sexual addiction behaviors and cognitions.

As expected, the use of multiple domains of sexual addiction behaviors and cognitions yielded slightly larger effect sizes in relation to the PSY-5 compared to previous studies. In a non-clinical sample of undergraduates, Lee and Forbey (2010) found sexual preoccupation scores to have small to moderate correlations ranging from .24 to .39 with all of the PSY-5 factors except Introversion/Low Positive Emotionality, which had a very weak association. Similarly, the current study, in a clinical sample, found small to moderate associations ranging from .12 to.45 between the PSY-5 domains

and the SDI-4.0 higher-order factor scales measuring sexual addiction behaviors and cognitions.

A more significant difference can be found when the current study is compared to Reid and Carpenter's (2009a) study of a clinical sample of men seeking treatment for "out of control sexual behavior," which found small effect size correlations, ranging from .16 to .29, between scores on the Sexual Compulsivity Scale and the MMPI-2 PSY-5 scales (p. 176). The findings of this study may have underestimated the degree of association between the PSY-5 personality traits and sexual addiction given the operationalization of sex addiction with a single, unidimensional total score reflecting sexual compulsivity. In contrast, somewhat stronger associations were seen in the current study, using multiple subscale scores representing a wide variety of sexual behaviors and cognitions that may be seen in individuals with sexual addiction.

Pain and Role Playing

The Pain and Role Playing construct is defined by sexual arousal arising from thoughts and behaviors connected to giving or receiving pain (Green et al., 2013). It includes a range of behaviors ranging from lower risk (e.g., bondage) to higher risk (e.g., choking during sex) and also includes behaviors such as using objects during sex, making pornography, and mental preoccupation with sadomasochism (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Angry Hostility, Dysphoria, Worry/Stress), and Psychoticism (e.g., Mistrust/Withdrawal) as well as Physical/Instrumental Aggression, Grandiosity/Indignation, and Disengagement/ Anhedonia were associated with Pain and Role Playing (see Table 21). It was

hypothesized that Disconstraint would be more strongly associated with Pain and Role Playing compared to other domains of sex addiction behaviors and cognitions but it did not have the strongest relationship with Disconstraint; Sexualized Attachment was more strongly associated with Disconstraint.

Hostility and Exploiting the Vulnerable

The Hostility and Exploiting the Vulnerable construct captures exploitive, hostile, and predatory sexual behaviors as well as mental preoccupation with the exploitation of vulnerable persons and with the production/distribution of pornography (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Angry Hostility, Dysphoria, Worry/Stress), and Psychoticism (e.g., Mistrust/Withdrawal) as well as Physical/Instrumental Aggression, Grandiosity/Indignation, and Disengagement/ Anhedonia were moderately associated with Hostility and Exploiting the Vulnerable (see Table 21). However, contrary to expectations, the strongest relationship of Disconstraint was with the Sexualized Attachment factor, rather than with Hostility and Exploiting the Vulnerable. It is noteworthy that Assertiveness was negatively related to this exploitative construct, as this might suggest that persons scoring high on this construct may lack the assertiveness needed to facilitate more "normal" or culturally-acceptable sexual relationships with non-vulnerable persons.

Table 21

Summary of Findings

	Pain and Role Playing	Hostility and Exploiting the Vulnerable	Sexualized Attachment	Isolated and Self-Stimulation	Swinging and Public Anonymous Sex	Networking for Anonymous Sex	Drug and Sex Trade Use
Aggressiveness			+				
Physical/Instrumental Aggression	+	++	++	++	+	+	+
Assertiveness		-		-			
Grandiosity/Indignation	+	+	+		+		+
Psychoticism	+	+	++	+	+	+	+
Paranoia			+	+	+		
Mistrust/Withdrawal Psychotic Experiences	+	++	++	++	+	+	+
Disconstraint	+	+	++	++	+	+	+
Antisocial History	+	+	+	+	+	+	++
Norm Violation Impulsivity/Low Harm Avoidance	+	+	++	+	+	+	+
Negative Emotionality/ Neuroticism	+	++	++	++	+	+	+
Angry Hostility	+	+	++	++	+	+	+
Dysphoria	+	+	++	++	+	+	+
Worry/Stress	+	+	++	++	+	+	+
Phobias			+				
Introversion/Low Positive Emotionality				+			
Disengagement/Anhedonia	+	+	+	++	+	+	+
Low Sociability			-				
Low Diligence/Hypomania			-				

Note. - *Negative Relationship*, + *Positive Relationship*, ++ *Substantial Positive Relationship*

Sexualized Attachment

Sexualized Attachment as a construct captures insecure attachment-related behaviors and obsessive mental preoccupation with relationships, stalking, intrusiveness, sexual conquest/serial relationships, and using money or power to sexually control persons (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Anger, Hostility, Dysphoria, Worry/Stress, Phobias), Psychoticism (e.g., Paranoia, Mistrust/Withdrawal), Aggressiveness (Physical/Instrumental Aggression, Grandiosity/Indignation), and Disengagement/Anhedonia were moderately (for domain scores) to strongly (for facet scores) associated with Sexualized Attachment (see Table 21). Low Sociability and Low Diligence/Hypomania were negatively associated with Sexualized Attachment, which would be expected, given the relationship-oriented nature of the construct. The Aggressiveness domain, found here related to Sexualized Attachment, did not have a strong relationship with any other SDI-4.0 higher-order factor but is consistent with Lee and Forbey's (2010) findings and further expands the previous findings, by isolating which facets of Aggressiveness are contributing to the relationship, Physical/Instrumental Aggression and Grandiosity/Indignation. The inverse relationship between the Low Sociability facet and Sexualized Attachment is consistent with previous findings which found that Extraversion (Miller et al., 2004) was positively correlated with risky health behaviors such as having multiple sexual partners (Caspi et al., 1997) in young adults.

Isolated and Self-Stimulation

As a construct, Isolated and Self-Stimulation captures sexual behaviors and obsessive preoccupations related to isolative sexual behaviors that can be done without contact with other people, such as excessive fantasy, use of pornography, and covert boundary violations (e.g., voyeurism; Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Angry Hostility, Dysphoria, Worry/Stress), Psychoticism (e.g., Paranoia, Mistrust/Withdrawal), and Introversion/Low Positive Emotionality (e.g., Disengagement/Anhedonia) as well as Physical/Instrumental Aggression and Assertiveness (negative) were strongly associated with Isolated and Self-Stimulation (see Table 21). The relationships between the Isolated and Self-Stimulation scale and Introversion/Low Positive Emotionality and lack of Assertiveness were no surprise given the isolative nature of the sexual behaviors and cognitions captured by this scale.

Swinging and Public Anonymous Sex

Swinging and Public Anonymous Sex, as a construct, is defined by behaviors and cognitions related to having anonymous sexual encounters, non-committed sexual partners, public sex (or exhibitionism), swinging, group sex, and putting oneself in sexual situations that are potentially dangerous (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Angry, Hostility, Dysphoria, Worry/Stress), and Psychoticism (e.g., Mistrust/Withdrawal, Paranoia) as well as Physical/Instrumental Aggression, Grandiosity/Indignation, and Disengagement/Anhedonia were associated

with Swinging and Public Anonymous Sex, although the effect sizes were small (see Table 21).

Networking for Anonymous Sex

As a construct, Networking for Anonymous Sex captures sexual behaviors and obsessive cognitions related to having sex through a computer or phone or finding sexual partners for anonymous sex through personal ads, computers, or phones (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotionality/Neuroticism (e.g., Angry Hostility, Dysphoria, Worry/Stress), and Psychoticism (e.g. Mistrust/Withdrawal) as well as Physical/Instrumental Aggression and Disengagement/Anhedonia were predictive of (small effect size) or associated with Networking for Anonymous Sex (see Table 21).

Drug and Sex Trade Use

As a construct, Drug and Sex Trade Use is defined by sexual behaviors and obsessive cognitions related to paying for sex (prostitution, strip clubs) and using sex in combination with drugs (Green et al., 2013). As expected, the current study found that Disconstraint (e.g., Antisocial History, Norm Violation), Negative Emotions/Neuroticism (e.g., Anger, Hostility, Dysphoria, Worry/Stress), and Psychoticism (e.g. Mistrust/Withdrawal, Paranoia) as well as Physical/Instrumental Aggression, Grandiosity/Indignation, and Disengagement/Anhedonia were associated with Drug and Sex Trade Use, although the effect sizes were small (see Table 21).

PSY-5 Facet Impulsivity/Low Harm Avoidance (DISC3)

It was predicted that Impulsivity/Low Harm Avoidance would be positively related to all of the seven SDI-4.0 scales, but the present study did not find evidence of

these relationships on a bivariate level of analysis. However, this lack of finding was likely strongly affected by the extremely low reliability of the PSY-5 DISC3 scale (α = .254), and thus should not be interpreted as a disconfirmation of this hypothesis. Using Spearman's (1904) formula for correction of attenuation due to measurement error, calculations can be made to assess what the potential relationship between the measured variables would be if both constructs had perfect reliability. In this case, if Impulsivity/Low Harm Avoidance (DISC3) and each of the SDI-4.0 scales had been measured with perfect reliability the correlations would have been the following based on this sample: Pain and Role Playing = -.069, Hostility and Exploiting the Vulnerable = -.198, Sexualized Attachment = -.234, Isolated and Self-Stimulation = -.181, Swinging and Public Anonymous Sex = -.188, Networking for Anonymous Sex = -.107, Drug and Sex Trade Use = -.331. The negative correlation suggested here would have been a disconfirmation of the current study's hypothesized direction of the relationship between Impulsivity/Low Harm Avoidance and the SDI-4.0 higher-order factors. Further findings in the CCA (Function 2) regarding this facet are discussed below. To more explicitly test this relationship, future research should include a measure that yields more reliable scores for the Harm-Avoidance construct, such as the Multidimensional Personality Questionnaire (Tellegen, 1982).

Multivariate Analyses

PSY-5 Domains Canonical

Overall, the multivariate analysis yielded stronger relationships made up of various combinations of variables that were difficult to discern when only relying on the results of the univariate analyses (as noted by Thompson, 1994). At the multivariate

level, the canonical correlation analysis yielded strong relationships between the PSY-5 traits and the higher-order factors of sexual addiction behaviors and cognitions (SDI-4.0 higher-order scales). Specifically, a strong first canonical function, explaining a large proportion of the variance, demonstrated that PSY-5 Psychoticism, Disconstraint, and Negative Emotionality/Neuroticism scales were related to all seven SDI-4.0 higher-order scales. The second function, though only accounting for a relatively small amount of the remaining variance (7.49%), yielded an interesting combination of related scales. This function indicated that a person who demonstrated a combination of being extroverted, disconstrained, aggressive, and often experiencing positive emotions would be more likely to participate in insecure attachment-related behaviors, such as obsessive mental preoccupation with relationships, stalking, intrusiveness, sexual conquest/serial relationships, and using money or power to sexually control persons, while being less likely to participate in isolative sexual behaviors that can be done without contact with other people, such as excessive fantasy, pornography, and voyeurism or spying (Green et al., 2013).

PSY-5 Facets Canonical

The PSY-5 facets canonical correlation analysis also yielded similar results to the correlation and regression analyses; however, the expanded number of variables provided by utilizing the facet scales enabled a larger percentage of variance (56%) between the variable sets to be accounted for compared to when only the PSY-5 domains were used (40%).

Profile #1. Persons scoring high on the first function, similar to the first function of the PSY-5 domains, appear to exhibit a broad array of maladaptive personality traits,

such as Dysphoria, Worry/Stress, Physical/Instrumental Aggression, Disengagement/Anhedonia, and Mistrust/Withdrawal, which were associated with all of the measured sexual addiction behaviors and cognitions.

Profile #2. The second function appeared to display a dimension with one side of the continuum being associated with isolative sexual behaviors that could be done without contact with other people, such as excessive fantasy, pornography, and covert boundary violations (voyeurism, spying) with associated personality traits of Impulsivity/Low Harm Avoidance, Dysphoria, Disengagement/Anhedonia, and Low Sociability. On the other side of the continuum, Assertiveness and Norm Violation were associated with insecure attachment-related behaviors, obsessive mental preoccupation with relationships, stalking, intrusiveness, sexual conquest/serial relationships, using money or power to sexually control persons, sexual behaviors and obsessive cognitions related to paying for sex (prostitution, strip clubs) and using sex in combination with drugs (Green et al, 2013). This function appears to largely call attention to a contrast between pursuers of multiple relationships (outgoing, assertive, using drugs, violating norms, potentially to the extent of grooming or preparing future sex partners) and the pursuers of more isolative sexual behaviors (impulsive, low harm avoidance, dysphoria, disengagement, anhedonia, low sociability). This finding that Impulsivity/Low Harm Avoidance is more related to isolative versus relationship-driven sexual addiction may be noteworthy and warrants further research.

Profile #3. The third function, though only accounting for a small amount of the remaining variance (7.00%), yielded an interesting combination of related scales. This function indicated that a person who demonstrated a combination of having Angry

Hostility, an Antisocial History, and who is not experiencing Dysphoria or Paranoia, would be more likely to participate in sexual behaviors and obsessive cognitions related to paying for sex (prostitution, strip clubs) and using sex in combination with drugs, being sexually aroused by thoughts and behaviors connected to giving or receiving pain, including a range of behaviors ranging from lower risk (e.g., bondage) to higher risk (e.g., choking during sex), and other behaviors such as using objects during sex, making pornography, and mental preoccupation with sadomasochism (Green et al., 2013). This person would also be less likely to participate in insecure attachment-related behaviors and mental preoccupation with relationships, stalking, intrusiveness, sexual conquest/serial relationships, and using money or power to sexually control persons (Green et al, 2013).

Profile #4. The fourth function also yielded an interesting combination of related scales though only accounting for a small amount of the remaining variance (6.41%). This function indicated that a person who demonstrated a combination of having Physical/Instrumental Aggression and Low Sociability, but without having Angry Hostility or Dysphoria, would be more likely to participate in exploitive, hostile, and predatory sexual behaviors, mental preoccupation with the exploitation of vulnerable persons and with the production/distribution of pornography, have sexual arousal arising from thoughts and behaviors connected to giving or receiving pain, behaviors such as lower risk (e.g., bondage) to higher risk (e.g., choking during sex) and also includes behaviors such as using objects during sex, making pornography, and mental preoccupation with sadomasochism (Green et al., 2013). This person would also be less likely to participate in insecure attachment-related behaviors, mental preoccupation with

relationships, stalking, intrusiveness, sexual conquest/serial relationships, using money or power to sexually control persons, and having sex through a computer or phone or finding sexual partners for anonymous sex through personal ads, computers, or phones (Green et al, 2013).

Communalities

One of the useful statistics of the CCA is the canonical communality coefficient (h^2), which indicates the variance in the observed variables that is represented in a canonical function *across* functions and indicates the variable's relative contribution to the synthetic variable (Thompson, 2000; see Tables 19 and 20). On the first CCA, the PSY-5 domains that had the strongest associations with the synthetic variable across functions were Aggressiveness, Disconstraint, Negative Emotionality/Neuroticism, and Introversion/Low Positive Emotionality, whereas the SDI-4.0 higher-order factors with the strongest associations were Sexualized Attachment, Isolated and Self-Stimulation, and Drug and Sex Trade Use. For the second CCA, the PSY-5 facets that had the strongest associations with the synthetic variable across functions were Physical/ Instrumental Aggression, Dysphoria, Antisocial History, Disengagement/Anhedonia, Norm Violation, Worry/Stress, Assertiveness, and Mistrust/Withdrawal, whereas the SDI-4.0 higher-order factors with the strongest associations were Sexualized Attachment, Isolated and Self-Stimulation, Hostility and Exploiting the Vulnerable, Drug and Sex Trade Use, and Pain and Role Playing.

These findings highlight the particular importance of the Sexualized Attachment and Isolated and Self Stimulation SDI-4.0 scales. For both CCA analyses, a very high percentage of variance in both of these scales was accounted for (96-99%). Very high

percentages were also found for the Drug and Sex Trade Use, Hostility and Exploiting the Vulnerable, and Pain and Role Playing scales. These findings suggest that some of the SDI-4.0 scales may be more associated with maladaptive personality traits than others. One might assume that the contrast between Sexualized Attachment and Isolated and Self-Stimulation might be merely a contrast between a more extroverted versus introverted sex addict. While these assertions may have some merit based on the continuum portrayed by Function 2 of the PSY-5 domains CCA, Function 1 of that CCA also portrays a person who scores high on both the more isolative and more relational sexual behaviors and cognitions. The amount of variance accounted for in the Hostility and Exploiting the Vulnerable suggests that this construct, and the sex-offending behaviors it describes, may be driven by personality variables. Similarly, the Drug and Sex Trade Use appear to have strong connections to personality, which is particularly interesting when considering the debate of whether or not there is an *addictive personality* underlying most addictions (Kerr, 1996).

Limitations of the Current Study

It appears that the ability to find evidence for some of the hypothesized findings was unduly affected by low reliabilities in a few specific PSY-5 facet scales. Given the difficulties obtaining data due to the comparatively small number of women sex addicts presenting for treatment, the current study was also limited only to males.

Clinical Utility of PSY-5 Domains and Facets

In general, the PSY-5 domains and facets did not differentiate much between the SDI-4.0 scales. For the most part, when a domain or facet had a strong relationship with one SDI-4.0 scale, it had a strong relationship with all the other scales. The canonical

correlations analyses did provide a more nuanced picture of combinations of scales, but often the more nuanced combinations were accounting for only a very small amount of the total variance. As mentioned above, it is clear from the canonical communality coefficient statistics that there are a number of SDI-4.0 higher-order factors that can have large portions of their variance accounted for by maladaptive personality traits. Therefore, personality trait-driven treatments could be tailored based on a patient's score on the higher-order factor. For instance, anger management skill acquisition may be a need for persons scoring high on HOF1-2 and HOF5-7, but it is not as necessary for persons scoring high on HOF3-4. Assertiveness training may be useful for persons scoring high on HOF2 or HOF4. Additionally, the inclusion of facet traits in treatment planning may prove helpful, such as using Cognitive-Behavioral Therapy for those scoring high on Dysphoria or Worry/Stress, Behavioral Activation may be needed for those scoring high on Disengagement/Anhedonia, or attachment-related therapies may be useful for persons scoring high on Mistrust/Withdrawal.

Construct Validity of PSY-5 Domains and Facets

The PSY-5 performed as predicted given previous research using the PSY-5 and other instruments in non-clinical and clinical sex addiction samples. The PSY-5 Facet Trait Scales demonstrated usefulness in providing nuances and additional variance not accounted for by the domains. However, a few of the facet traits continue to be plagued by low reliability for some scales, particularly DISC3, INTR3, and PSYC1, possibly because of the few number of items or low base rates. Thus, future research is needed, using scales with higher reliability, before theories could be promoted that would

highlight the lack of relationships between the personality constructs and the sexual behaviors and cognitions assessed.

Conclusions and Future Research

It is still relatively early in the development of an understanding of the relationship between maladaptive personality traits and sex addiction behaviors and cognitions, but there appears to be initial evidence that at least some of these behaviors are linked to relatively stable maladaptive patterns of relating to the world. Researchers are encouraged to conduct research comparing the results of this study with the MMPI-2 RF PSY-5, which has fewer items. A communality analysis of PSY-5 domain regressions and canonical correlation analyses would be helpful to determine with more clarity the nature of the relationships of each personality trait with the sexual addiction behavior and cognitions. Future research that included women who presented for sex addiction treatment would be helpful to compare how personality traits may differ in relation to sexual addiction behaviors and cognitions by gender. Certain sex addiction behaviors and cognitions appear to be more personality driven than others. It would be helpful if more research was done on these potentially personality-driven sexual addictions in relation to personality disorders. Additionally, future research would be helpful in assessing whether there is a relationship between impulsivity and isolative sexual behaviors/cognitions in contrast to relationally-driven sexual behaviors/cognitions, where there may be comparatively less impulsivity driving the behaviors.

This study serves as another step toward delineating the relationships between maladaptive personality traits and sexual addiction behaviors and cognitions and set the groundwork for future studies. The study also serves to highlight the potential utility of

assessing sex addicts with multiple-component personality and sex addiction measures, thus, potentially enabling a clearer assessment picture and the development of treatments tailored to meet the specific needs of these patients.

APPENDIX A

INSTIUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
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NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **13031904**
PROJECT TITLE: **Maladaptive Personality Traits and Sex Addiction Profiles**
PROJECT TYPE: **Thesis**
RESEARCHER(S): **Jonathan Jore**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY/SPONSOR: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **03/20/2013 to 03/19/2014**

Lawrence A. Hosman, Ph.D.
Institutional Review Board

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